MATAN
Digital Printers

Barak iQ

The Barak iQ User's Manual

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For further details regarding the disposal of parts and consumables, contact your local distributor.

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CE

FC

This device complies with part 15 of the FCC Rules.
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This Class A “Industrial, Scientific and Medical Radio Frequency Generators” also meets all requirements of the Canadian Interference-Causing Equipment Regulations.

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3. Product was either improperly installed, operated or used for a purpose for which it was not intended, or,
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1 Introduction

Notations in this Manual

This information is important and should be noted.

Information given in this message warns of a hazard.

Information given in this message refers to the only safe method of installation or operation and must be adhered to.

Important Notes

It is recommended that the operator be fully familiar with all sections of this manual. Failure to do so may compromise the warranty and the accuracy of the printer.

After moving the printer to a new location, you must ensure that it is completely level before commencing work.

The Operating Procedures described in this manual should be carried out in the order that they are presented.

The printer is under constant development and we reserve the right to make changes to its specifications, without prior notification.

The photographs appearing in this manual were taken under factory conditions. Any objects that may appear, other than those refered to in the accompanying caption, should be ignored.

In some photographs, for clarity, the printer's outer covers were removed.

- When any reference is made to Media it also refers to Substrates and visa-versa.
- You should use the Around the Windows chapter as your Quick Reference Guide. This chapter contains an explanation of all the application's main windows and dialog boxes.

When changing worn parts or used materials, dispose of them according to your local regulations and, where applicable, have them recycled.

2 The Print Workflow

The following flowchart gives you our recommended workflow for using your **Barak iQ** printer.

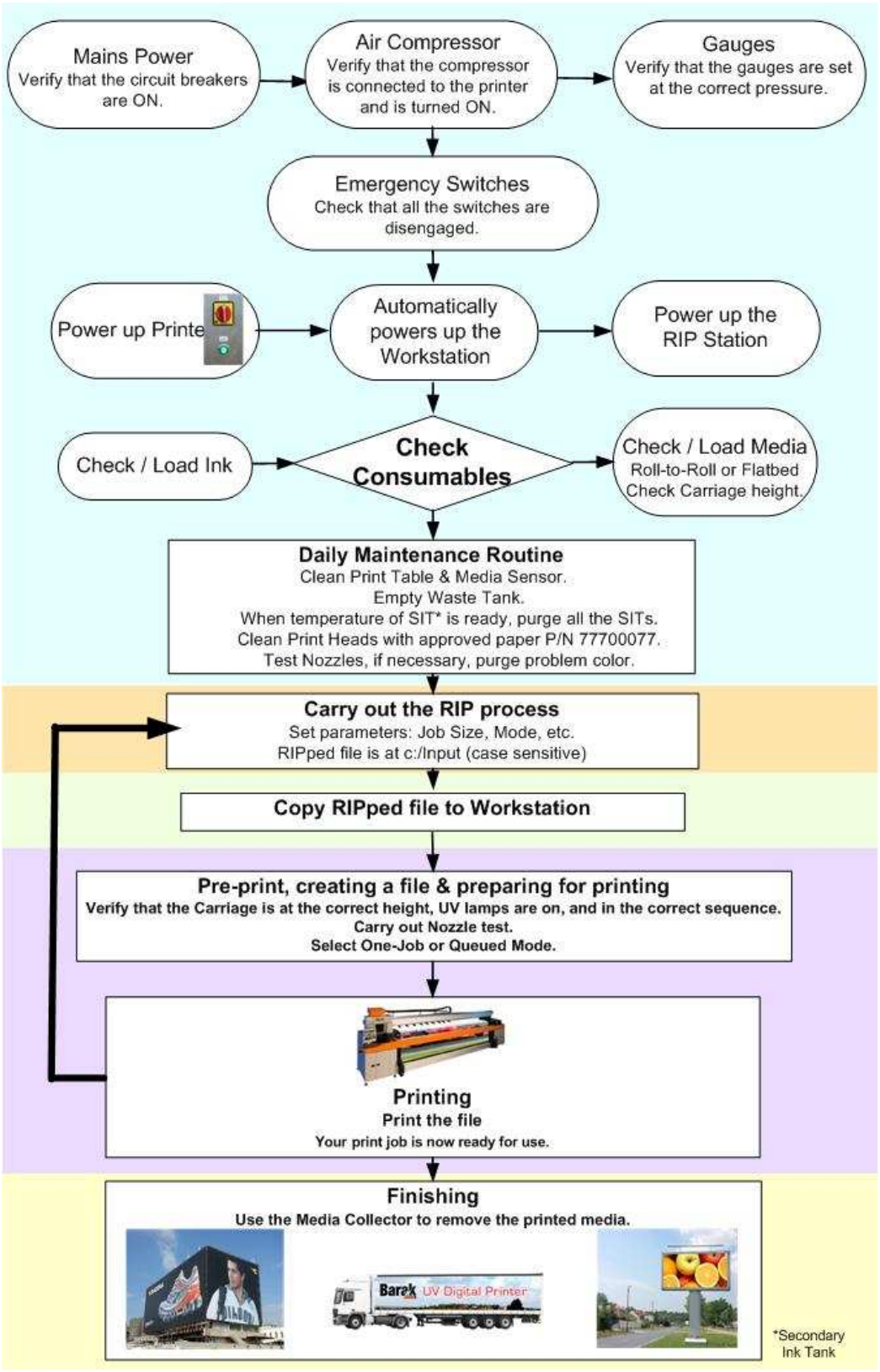

Mains Power
Verify that the circuit breakers are ON.
Air Compressor
Verify that the compressor is connected to the printer and is turned ON.
Gauges
Verify that the gauges are set at the correct pressure.
Emergency Switches
Check that all the switches are disengaged.
Power up Printe
Automatically powers up the Workstation
Power up the RIP Station
Check / Load Ink
Check Consumables
Check / Load Media
Roll-to-Roll or Flatbed
Check Carriage height.
Daily Maintenance Routine
Clean Print Table & Media Sensor.
Empty Waste Tank.
When temperature of SIT* is ready, purge all the SITs.
Clean Print Heads with approved paper P/N 77700077.
Test Nozzles, if necessary, purge problem color.
Carry out the RIP process
Set parameters: Job Size, Mode, etc.
RIPped file is at c:/Input (case sensitive)
Copy RIPped file to Workstation
Pre-print, creating a file & preparing for printing
Verify that the Carriage is at the correct height, UV lamps are on, and in the correct sequence.
Carry out Nozzle test.
Select One-Job or Queued Mode.
Printing
Print the file
Your print job is now ready for use.
Finishing
Use the Media Collector to remove the printed media.
Barak UV Digital Printer
*Secondary Ink Tank

Figure 1: The Print Workflow

RIP Conversion

In desktop publishing, RIP — raster image processing [verb] or raster image processor [noun] — is the process and the means of turning vector digital information such as a PostScript file into a high-resolution raster image. That is, the RIP takes the digital information about fonts and graphics that describes the appearance of your file and translates it into an image composed of individual dots that the imaging device (such as your desktop printer or an image setter) can output.

Print Process

As shown in Figure 1, page 3, by using RIP software, the files are processed to tiff files. These files are read by the printer and the data is sent via the control system to the PRINT HEADS, where they are processed onto the media.

3 Specifications

Printing Technology • Piezo Drop-on-Demand inkjet technology • Resolution: True 600 dpi., up to 1200 dpi apparent • Matan approved inks, pigmented UV curable, up to two years outdoor.	
Printing Technology	
Throughput	The Barak 5 m Printer: 353 m^2 / hr (3800 ft^2 / hr) The Barak 3.5 m Printer: 278 m^2 / hr (3000 sq ft^2 / hr)
Coverage	Up to 180 m^2/liter (1940 ft^2 / liter) Based on Matan's testing & average consumption at a customer's site.
Media	
Handling	**Standard**: Roll-to-Roll. **Optional**: Multi-Roll, Flatbed, Ionizer and Expanding Media Collector (optional). Up to three pairs of Flatbed Tables can be supplied for the Barak5 and up to two for the Barak3.
Media supported	**Flexible**: Backlit paper, Banner, Blue-back paper, Carpets, Coated & Uncoated media, Flexface, Mesh, PE,Self-adhesive Vinyl and Tyvek. **Rigid**: (up to 25 mm –1 in) thick: Foam PVC, Acrylic, Aluminum, Foam Board and Corrugated Board.
Max print width	5 m (197 in) or 3.5 m (138 in).
Max media width	5.3 m (209 in) or 3.8 m (150 in).
RIP	
RIP Software – Caldera	Dedicated Barak RIP
Supported formats	EPS, PS3, TIF, PDF, PSD, JPEG, etc.

Ink Storage Temperature	
Please refer to our MSDS document that is provided with the Ink, or contact your local Support Center.	
Printer Dimensions (Incl. feet and Warning Buzzer)	**The Barak 5 m Printer** Unpacked: (H x W x D). 2.1 m x 8.2 m x 1.2 m (82 in x 322 in x 43 in.)
	The Barak 3.5 m Printer Unpacked: (H x W x D) 2.1 m x 6.7 m x 1.2 m (82 in x 264 x 43 in.)
Weight	**The Barak 5 m Printer** Unpacked approx.: 5300 kg (11,700 lb) Crated: approx. 6000 kg (13,200 lb) **The Barak 3.5 m Printer** Unpacked approx.: 4350 kg (9,590 lb) Crated: 5000 kg (11,000 lb)
Operating Conditions*	
Operating Temperature Humidity Air pressure Electricity	20ºC – 29ºC (68ºF – 84.2ºF). 50% – 80%, non-condensing. 6 bar (87 psi), airflow of 7 liters/sec, dry clean air. 30A/380V 3 Phase 50 Hz.

*Operating the printer under conditions different from those described above, can adversly affect the print quality.

4 Safety

This chapter provides important safety information. Make sure to read it carefully before operating the printer!

First Aid Procedures

An adequate first aid kit should be provided.

After contact with ink

When in doubt, or when symptoms persist, seek medical attention.

Never make an unconscious person vomit or drink fluids.

Immediately remove any clothing soiled by the product.

After inhalation

Remove the patient from the contaminated area into the fresh air.

If breathing is irregular or stops, administer artificial respiration.

If the person is unconscious, place them in the appropriate recovery position.

Keep the patient warm and calm until qualified medical attention arrives.

After contact with the skin

Wash the affected area thoroughly with plenty of cold or lukewarm water and neutral soap, or use a suitable skin cleanser.

Remove contaminated clothing and wash it separately with an alkaline detergent.

Throw away highly contaminated clothing, into a suitable container.

Avoid concurrent exposure to sunlight or other sources of UV radiation which may increase skin sensitivity.

Do not use solvents or thinners.

In the case of skin reddening or rashes, call a doctor immediately.

After contact with the eyes

Call a doctor immediately.

Remove contact lenses.

Rinse the eyes by irrigation with plenty of clean, fresh water for at least 15 minutes, holding the eyelids apart, until the irritation is reduced.

Avoid concurrent exposure to sunlight or other sources of UV radiation which may increase eye sensitivity.

After Ingestion

Seek immediate medical attention. Do not induce vomiting, due to the risk of aspiration. Keep the patient still.

Give patient copious amounts of water to drink and provide fresh air. Call for a doctor immediately.

Eyewash Solutions

Provide Eyewash Stations complying with the local health and safety standards. They should be located within 7.6 m (25 ft) of the printer and the flammable liquid storage cabinets.

The location of these stations should be clearly marked and easily accessible so that they can be reached quickly if needed. You can obtain these stations from companies that supply industrial safety equipment.

General Safety Hazards

Safety Precautions and Measures

To obtain relevant safety information and data, regarding the proper use, storage and handling, and disposal of Matan inks, please refer to the Material Safety Data Sheet (MSDS) which is available on Matan's website: www.matanprinters.com, on the Customers' Support page. There is an MSDS for each ink used with Matan's printers.

Make sure to post precautionary and warning signs in several strategic locations. The following sections show examples that should be added to the signs required by your local Occupational Safety and Local Fire Ordinances.

Fire Prevention

The ink and flushing fluid should be kept in storage cabinets designed to hold flammable liquids and must be clearly labeled to comply with occupational safety regulations. The storage cabinets must meet the local fire and safety standards

You should not store more than the locally permitted amount of inks and flushing fluid in any single storage cabinet. Local fire regulations regarding the use and storage

of flammable materials must be strictly observed. Make sure that the inks are stored separately from any other material.

CO_2 fire extinguishers must be easily accessible and visible from all approaches to the Restricted Area. They must be accessible within 7.6 m (25 ft) of the **Barak iQ** printer and the flammable liquids storage cabinets, or according to local fire regulations.

Accident Prevention

Both the electric power cable and air supply cable connected to the printer should be channeled inside suitable conduits. Tripping over loose wires may cause injury and/or damage to the printer.

UV Lamp Protection

Never look directly at the UV light source, as UV radiation can cause eye damage. Before you start servicing the UV lamps, allow them time to cool down, as they can burn the skin if they are hot.

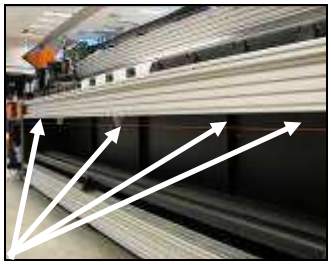
Installation Provisions

Only a qualified electrician should install the **Matan iQ** printers. The User is responsible for providing electricity supply and compressed air, according to the Product Specification Sheet.

Safety Signs

Printer Mounted Signs

The following safety signs are attached to the printer:

Label	Description
	Indicates the Mains Power Switch.
	Emergency Stop Buttons. When pressed, will immediately turn off the printer.
	Emergency Stop Cord.
	Do not touch any electrical component or wiring while the printer is On.
	Keep your hands clear of any moving parts while the printer in On.
	Keep your hands clear of the X-Axis Motor Assembly while the printer is On.
	Keep your hands clear of all the Rollers and Shafts while the printer is operating.

	Keep your hands clear of all the Rollers and Shafts while the printer is operating.
	Danger of UV radiation! Keep the Hood closed while the printer is working. Before servicing the UV lamps, allow them to cool down. When servicing the lamps, wear UV goggles that conform to international standards.
	Keep your hands clear of the Hood when it is closing.
	Keep clear of the moving Carriage.
	Avoid contact between the Ink and your skin. Treat affected areas immediately.
	Avoid contact between the Ink and your eyes. Wear suitable protective goggles when handling the Inks.
	Do not operate the printer without proper site ventilation.

Signs Mounted Close to the Printer

The following signs should be mounted around the work area:

Keep Work Area Clean

When you plan and design your site, provide convenient access to washing facilities, with suitable eye-washing equipment.

Always keep the working area clean and dust free.

Try to clean any spills as soon as they occur. Make sure to wear gloves, goggles, and long sleeves when cleaning up spilled ink. Absorb the ink in dry sand or soil and place it into a covered waste container. Move the containers at least 7.6 m (25 ft) from the Restricted Area.

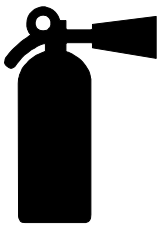
Flush the affected area with water.

Waste Disposal

A covered fireproof container clearly labeled as hazardous waste should be placed in the production area, for disposing waste solvent and ink. The container must be electrically grounded during the transfer of liquids into or from the container. If solvent-soaked rags or absorbents are used to clean the area, they must also be disposed of into a closed fireproof container and labeled as hazardous waste.

These waste containers must be located at least 7.6 m (25 ft) from the Restricted Area. Contact your local fire, health and safety agencies for information regarding the storage and disposal of waste from the printer.

Fire Protection



Provide dry carbon dioxide (CO_2) fire extinguishers and install them in easily accessible locations.

Potential Fire Hazard

Use CO_2 Fire Extinguishers.

In the case of serious fires you can also use alcohol resistant foam and water spray/mist.

Do not attempt to extinguish the fire by using a direct water jet onto it.

Cool endangered containers with water spray.

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Specific risks

As a consequence of combustion or thermal decomposition, hazardous by-products may be produced, such as carbon monoxide, carbon dioxide, nitrogen oxides, or sulfur oxides. Exposure to combustion or decomposition products may be a hazard to health. Pyrolized acrylates act as a high irritant to the respiratory system.

Fire-proof Protective Equipment

Depending on the magnitude of the fire, heat-proof protective clothing may be required, appropriate independent breathing apparatus, gloves, protective glasses or face masks, and boots.

Other recommendations:

- Cool the tanks, cisterns or containers close to sources of heat or fire, with water.
- Bear in mind the direction of the wind.
- Do not allow fire-fighting residue to enter drains, sewers or water courses.

Ventilation

The area in which the inks are handled should be well ventilated to prevent accumulation of hazardous vapors. Use extreme care to avoid spillage, and prevent splashing of eyes or skin.

To prevent the accumulation of hazardous vapors, sufficient ventilation must be provided to exchange the air in the Production Area, approximately 4 – 6 times per hour.

Restricted Area

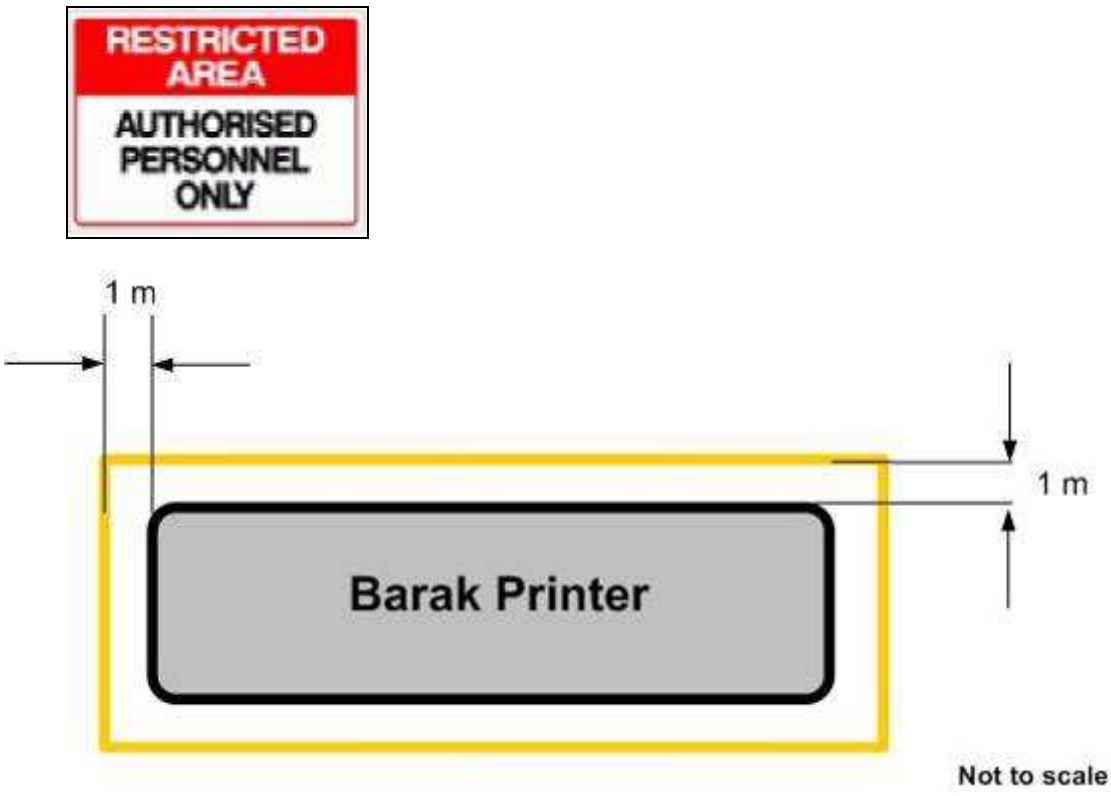


Figure 2: The Restricted Area

The Restricted Area is defined as the area within 1 m (3.5 ft) from any part of the **Matan iQ** printer, e.g. any of the rollers, print head carriage, printing table, etc.

When working with the optional Flatbed tables, the Restricted Area is to be extended by 1 m (3 ft) both at the front and rear of the printer.

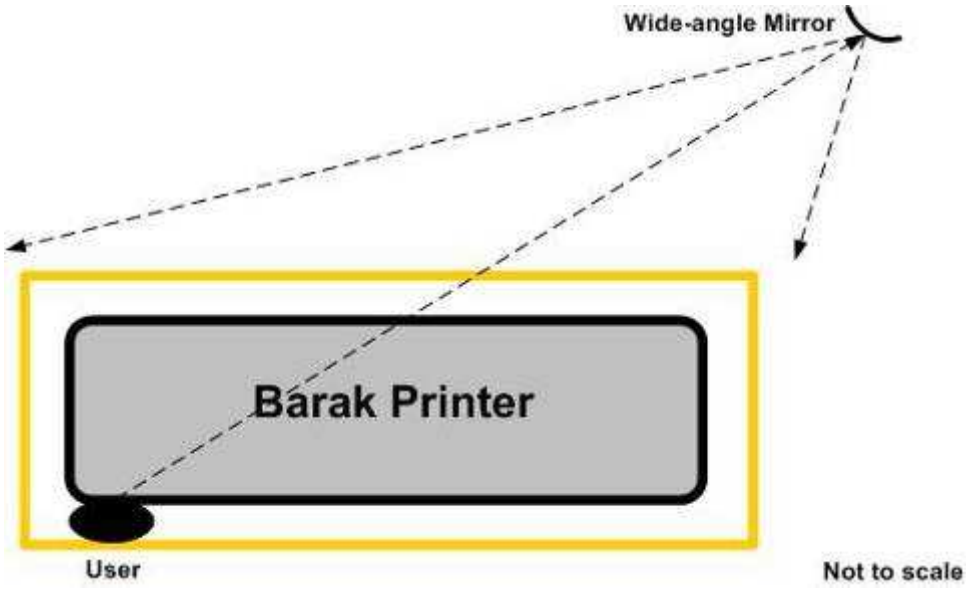
The Restricted Area is extremely hazardous when the printer is in operation and proper safety guidelines must be followed to ensure a safe work environment.

Only the machine operator and authorized personnel may access the Restricted Area.

It is mandatory that the machine operator presses one of the EMERGENCY STOP buttons as soon as he sees an unauthorised person within the restricted area.

Moving parts can cause serious injury.

Wide-angle Mirror



You must install a wide-angle mirror that will provide the operator with a peripheral view of the restricted area around the printer insuring that it is clear of unauthorized personnel prior to machine operation.

Personal Safety

Ink Handling

Please take the following into consideration when handling inks or solvents:

- Do not store or handle near open flames, sparking tools or electrical discharge.
- Do not drink or otherwise ingest ink, cleaning fluid or waste fluids.
- Do not smoke in the vicinity.
- Clear spills immediately.
- Dispose of empty containers, ink soaked rags and waste according to relevant local and national authority procedures.
- Be familiar with the relevant MSDS.
- Store ink as instructed in the MSDS.
- Do not operate the printer when there is spillage in the vicinity.
- Do not allow untrained personnel to handle ink, cleaning fluids or waste fluids or to enter the Restricted Area.

- Keep children and animals away from the printer.
- Wear multi-layer protective gloves (for example, 4H, Saranex, or Nitrile gloves) when handling cleaning fluid, inks or any waste fluids to prevent contact with skin.
- Always wear protective goggles while handling ink system, cleaning fluid or waste liquid.
- Wear clothing that covers all body parts to prevent ink contact with skin.
- Ink can be irritating to eyes, throat and skin, and breathing its vapors can cause dizziness or other symptoms. These symptoms may not appear immediately.
- Never wear contact lenses while handling inks or flushing fluid.
- When using flushing fluid, make sure that the printer is completely shut down and cooled down.
- Wash your hands thoroughly at the end of each work shift, before eating, smoking, or using the toilet. If ink spills on your skin, wash immediately. Remove any clothing that is contaminated with ink.

Working with Loctite

Avoid contact between Loctite and your eyes or skin.

Follow the manufacturer's safety instructions very carefully.

Only use the specifed Loctite product number.

Working with the Barak iQ Printer

Please take the following precautions when working with the **Barak iQ** printer in order to ensure your personal safety:

- All personnel are to read and understand the User's Guide and be alerted to the potential hazards indicated by the safety labels before operating this machine.
- Only a trained and authorized person is to be permitted to service and operate this machine.
- Training should include instruction in operation under normal conditions and emergency situations.
- Never climb onto any part of the printer. Always use a ladder or steps if necessary.
- Never use any part of the printer to help you maneuver on or near the printer.
- Never reach into the machine for any reason unless the machine is at a complete stop.
- Never leave the machine stopped in such a manner that another worker can start it while you are in the restricted area.
- Never change or deactivate the function of electrical interlocks or other machine "shutdown" switches.

- Before starting the printer, check that all persons are clear of the printer, and that the machine is free of paper scraps, wraps and other loose material that shouldn't be there.
- There is a potential hazard of entanglement in this machine caused by long hair, loose clothing, jewelry, or similar items.
- Within 3 seconds of hearing the buzzer, keep at least 1 m away from the machine.
- Do not approach the printing area when the print head carriage is activated.
- The areas around loading and unloading points are to be kept clear of obstructions that could endanger personnel.
- Under no circumstances are the safety characteristics of this equipment to be altered.
- Routine inspections and corrective/preventative maintenance measures are to be carried out, to ensure proper operation and safety.
- As a general rule, this equipment is not to be cleaned or serviced while in operation.
- Never look directly at the UV light source.
  You must always wear suitable anti-UV goggles that conform to international standards.
- If you are servicing the UV Lamps, allow the lamps ample time to cool down first, as contact with the hot lamps can burn the skin.
- Avoid smoking, eating, or drinking within the printer's Restricted Area.
- Follow the fire prevention precautionary methods described in this chapter.
- Shut OFF the main power switch when servicing electrical components (AC power boxes or cables).
- While the printer is operating, stand at the workstation. Do not approach the printing area, and keep hands clear of movable parts.
- While the printer is operating, certified operators and Matan field service engineers only are permitted in the restricted area.
- While loading and unloading heavy materials, make sure to wear steel-toed safety boots. Do not attempt to load or unload materials while the printer is operating.
- Do not operate the printer while under the influence of drugs or alcohol.

The Emergency Stop Buttons

The **Barak iQ Printer** is equipped with seven EMERGENCY STOP BUTTONS for the 5 m model, and six buttons for the 3 m model, as well as an EMERGENCY STOP CORD which is located along the front of both printers, as shown in the following two figures.

Make sure all the EMERGENCY STOP BUTTONS are pulled out, by turning them clockwise.

Emergency Stop Button

Emergency Stop Cord

Additional Safety Information

Operating Hazards

Reversing the Media back between the rollers, must be carried out only by a qualified operator.

When the printer is operating in Reverse Mode, a qualified operator must be present.

Potential Mechanical Hazards

Cable Chain

The FLEXIBLE CABLE CARRIER carries all cables and pipes going from the PC and ink system to the CARRIAGE. The carriage moves continuously during the printing process along the chassis at a speed of up to 2.2 m/sec.

Contact between the moving CARRIAGE and a foreign object can cause an injury.

The Hood

The HOOD, which is located at the top front of the printer, protects the user from such dangers as UV rays and contact with the moving CARRIAGE. The printer will not operate unless the HOOD is closed. Pressing one of the EMERGENCY STOP buttons or pulling the EMERGENCY CORD will immediately stop the CARRIAGE and switch off the UV lamps.

The HOOD may injure a hand when closing. To minimize this hazard:

- Soft rubber protectors are installed along the HOOD's edge.
- A warning light and a buzzer are activated before the HOOD starts moving.
- A number of safety labels are located on the HOOD, warning against this hazard.
- The HOOD is activated manually, by turning a switch on the FRONT SWITCH PANEL, which is located on the front left side of the printer. A label located adjacent to the switch warns the operator to check that there re no foreign objects that might obstruct the closing HOOD.
- The HOOD has a pneumatic locking mechanism, which lifts it if the air supply stops.

Press Roller and Shaft

There is a danger that the PRESS ROLLER and the SHAFT could crush a hand while moving one roller next to another—which is their print position. This action is activated manually by the operator who presses two buttons on the rear of the left cabinet. There is a safety label near those buttons instructing the operator to make sure the rollers are not obstructed.

Another potential hazard is for those rollers to catch and crush a finger when the media is manually rolled backwards and somebody places a hand on the media. To minimize this hazard, there are a number of safety warning labels on the printer's back frame. In addition there are five EMERGENCY STOP buttons along the rear of the Barak 5 m printer, and four buttons on the rear of the Barak 3 m printer. Pressing one of those buttons stops the media movements immediately.

In addition, these two hazards can be minimized by instructing the customer to draw on the floor and administer a safety zone of 1 m around the machine, as shown in Figure 2, page 14.

UV Radiation

The machine contains two Ultra Violet (UV) lamps which operate while it prints. While the machine is idle at the HOME position, the UV shutters are closed, and the UV bulbs are automatically turned off after 20 minutes of idle time.

Looking at the UV light with the naked eye is dangerous. This hazard is minimized by the HOOD being equipped with transparent UV-blocking panels. In addition, the machine will print only while the Hood is closed.

UV radiation is contained by the HOOD and by opaque PVC sheets along the front and back of the printing table. There are safety labels on the UV bulb assemblies and on the printer’s frame.

When working near the UV Lamps when they are switched on, you must wear suitable anti-UV goggles that conform to international standards.

Electrical Hazards

The printer's electricity input is 3-phase 380V 30 amp VAC, connected to the main electricity panel at the printer's right side, when looking from the front of the printer.

- The main electricity panel is protected by the cabinet metal door and a rigid transparent plastic panel.
- Single phase voltage at the PC.
- Five motor drivers (located above the main electricity panel).
- The UV bulbs assembly on the CARRIAGE.

Human contact with these AC voltages may cause electrical shock and burns. This hazard is minimized by:

- Over-current and over-voltage of a circuit breaker for the main input and for each AC voltage within the machine.
- By proper grounding of all electrical circuits.
- By safety labels on each electrical cabinet door and close to all AC contact points.
- In case of an overload, the circuit breaker triggers and switches off the printer. The machine operator is authorized to open the cabinet door in order to switch on a circuit breaker, in case it triggers. The cabinet door is locked by a special key and not by a regular handle, to prevent occasional opening of the cabinet. Only a certified Matan technician is authorized to remove the plastic cover for access to the main Electricity Panel. This can be done only after the main power is switched off.

Within the machine the AC voltages are converted to DC voltages of 5V, 24V and 48V, and distributed to various points. Human contact with these DC voltages may cause electrical shock and burns.

This hazard is minimized by:

- A circuit breaker for the main input and for each AC voltage within the printer.
- Proper grounding of all electrical circuits.
- Safety labels on each electrical cabinet door or panel.

Ink System

The ink system contains the main ink tanks, pumps, filters, manifold, secondary ink tanks, print heads and pipes.

As noted on the MSDS, the ink is a mixture of pigments, resins and additives in organic solvents. Contact with the ink can cause irritation of the eyes and skin.

Each container of ink (and flushing fluid,) is supplied with an MSDS. This document provides important safety information and must be read carefully.

There are safety labels by the Main Ink Tanks instructing the operator to wear glasses and gloves while handling the ink. The ink is heated by the machine to its printing point. The heater will cut off if the required temperature is exceeded.

To eliminate any inconveniences due to vapors and bad smell, the machine should be well ventilated—by changing the air at least 4 – 6 times per hour.

Personal Precaution

- Eliminate possible sources of ignition and when appropriate, ventilate the area.
- Do not smoke.
- Avoid direct contact with the inks.
- Avoid breathing vapors.

Environmental Precautions

- Avoid contamination of drains, surface or subterranean water and soil.
- In the case of large-scale spills or when the product contaminates lakes, rivers or sewages, inform the appropriate authorities in accordance with local regulations.

Cleaning-up Methods

- Contain and mop up spills with non-combustible absorbent materials (earth, sand, vermiculite, diatomaceous earth, etc.).
- Clean preferably with a detergent.
- Avoid use of solvents. Keep the remains in a closed container.

Handling Precautions

- Comply with the local health and safety regulations.
- Avoid any type of leakage or escape.
- Keep the container tightly closed.

Recommendations for the prevention of fire and explosion risks

Vapors are heavier than air; they may spread along floors to a considerable distance. They can form explosive mixtures with air and are able to reach distant ignition sources and ignite up or explode. Due to its flammability, this material should only be used in areas from which all naked lights and other sources of ignition have been excluded and away from other heat or electrical sources. Do not smoke anywhere near the printer or the area where the ink is stored.

Storage of Ink

- Prevent unauthorized access to the storage areas.
- Inks should be kept isolated from heat, sparks, flame and other ignition and electrical sources.
- In order to avoid leakages, the containers should be kept tightly closed and placed in a vertical position.
- Maximum storage period: 12 months.
- Temperature range: 5 – 25°C (41 – 77°F). Do not expose the inks to higher temperatures as this can cause premature curing.
- The relative humidity should be approximately 20% - 50%, non-condensing.
- Violent polymerization may occur at elevated temperatures. It is best to avoid sources such as heat, light, gamma or X-rays during transportation and storage. Overexposure to these types of energy may cause premature gellation.
- Keep away from reducing agents, oxidizing agents, acids, alkalis, metals, peroxides, polymerization initiators.
- Store in the original container, protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials, food and drink.
- Use appropriate containment to avoid environmental contamination.

Storage of Flushing Materials

- Flushing solutions should be stored between 10 - 35°C (50 – 95°F).
- Store away from any type of UV light source or stray light source and in UV-light -resistant containers.
- Keep away from heat, sparks, flame and other ignition source. After opening, keep the container tightly closed.

Additional General Information

The instructions and information provided by the manufacturer of the personal protective equipment on use, storage, maintenance and replacement must always be followed.

General protective and hygiene measures

- Keep away from foodstuffs, beverages and animal feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes and skin.
- Store protective clothing separately.

Breathing equipment

Not necessary if room is well-ventilated.

Protection of hands

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

Single use disposable nitrile gloves (short duration exposure of few minutes or where only splashes likely). Not to be reused when removed.

Minimum 0.4mm thick neoprene or nitrile gloves (longer duration exposure or mechanical handling activities). To be replaced immediately when punctured or degraded.

Heavy duty unlined neoprene gloves (when using solvents). To be replaced immediately when punctured or degraded.

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.

The selection of single or multi-use gloves is dependent upon the level of exposure.

The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance. Always ensure that gloves are free from defects and that they are stored and used correctly.

Hands should be inspected on a regular basis for any signs of skin damage or inflammation

Penetration Time of Glove Material

The exact break-through time has to be obtained from the manufacturer of the protective gloves and must be observed.

Eye Protection

Safety glasses

Body Protection

Protective work clothing; disposable overalls are preferable.

Acrylates, like any other organic solvent, are skin and/or eye irritants. Since acrylates do not evaporate, they will remain on the skin or clothes for extended periods. This long term exposure, caused by the non volatility, can give rise to dermatitis. It is essential that the measures given above are always followed.

5 General Description

Views of the Printer

The following figures show the exterior views of the printer and indicate the various access areas.

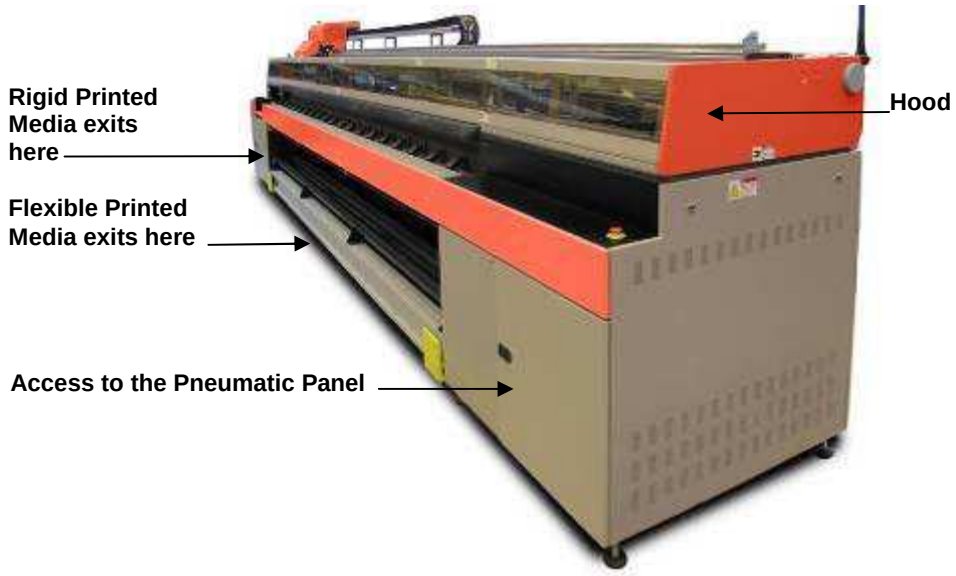


Figure 3: The Printer – front and right side

Figure 4: The Printer – front and left side

Access to the Motor Servo Units
Access to the Electrics Panel
Access to the UV Lamp Power Supply Units
New Rigid Media
New Flexible Media

Figure 5: The Printer – rear and right side

Figure 6: The Printer – rear and left side

Media Pressure Roller Indicators

The **Barak iQ** 3 m printer has 12 MEDIA PRESSURE ROLLERS installed at the front, and the **Barak iQ** 5 m has 18 as shown in Figure 7. At the rear of the printer, there are corresponding MEDIA PRESSURE ROLLER INDICATORS that will help you correctly align the media when loading it—each indicator at the rear, corresponds to a roller at the front of the printer.

A Media Pressure Roller Indicator

Figure 7: The 12 Media Pressure Roller Indicators

6 The Main Systems & Operator's Controls

Main Systems

Mains Power

- You must carefully adhere to the following instructions.
- Improper use of the power and electrical connections could endanger your life!
- You must not touch any of the electric or electronic components without permission from an authorized Matan Technician.

The MAINS POWER SUPPLY SYSTEM is located at the rear right side of the printer, as shown in Figure 8.

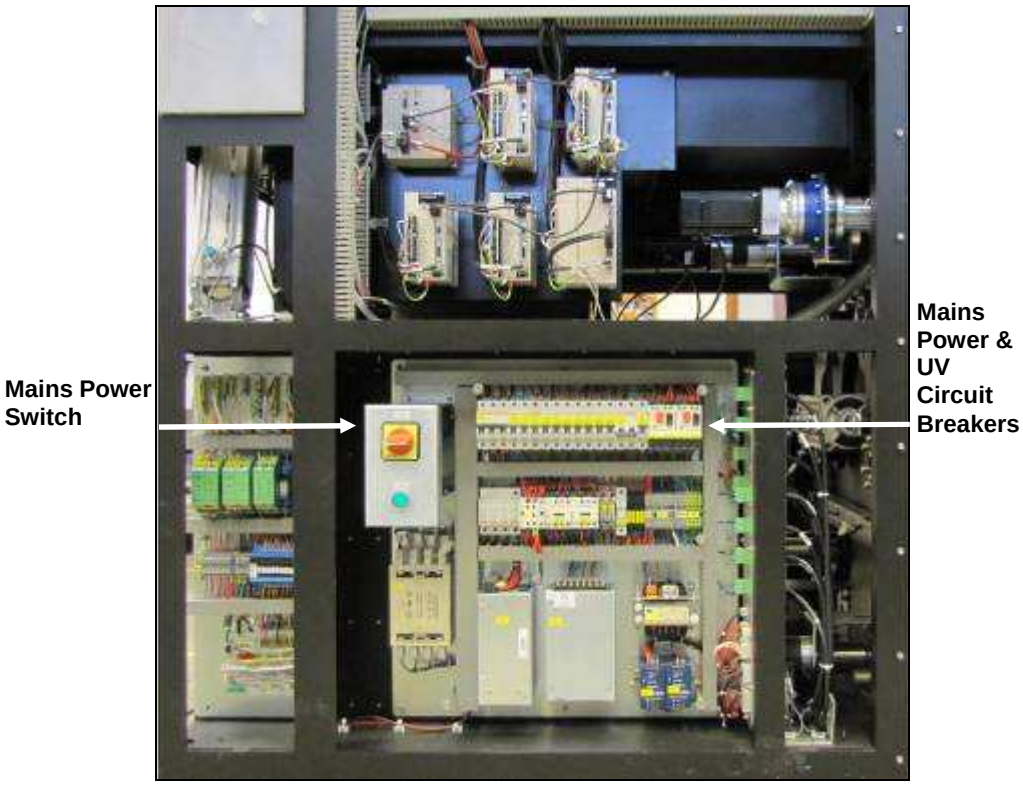


Figure 8: The Mains Power Supply System

Electronic System

The ELECTRONIC SYSTEM is located to the left of the MAINS POWER SUPPLY SYSTEM, as shown in Figure 9.

Figure 9: The Electronic System

Motion Control System

The MOTION CONTROL SYSTEM is located above the MAINS POWER SUPPLY SYSTEM (as shown in Figure 10). It comprises the MOTOR DRIVERS and the DRIVERS' CONTROLS.

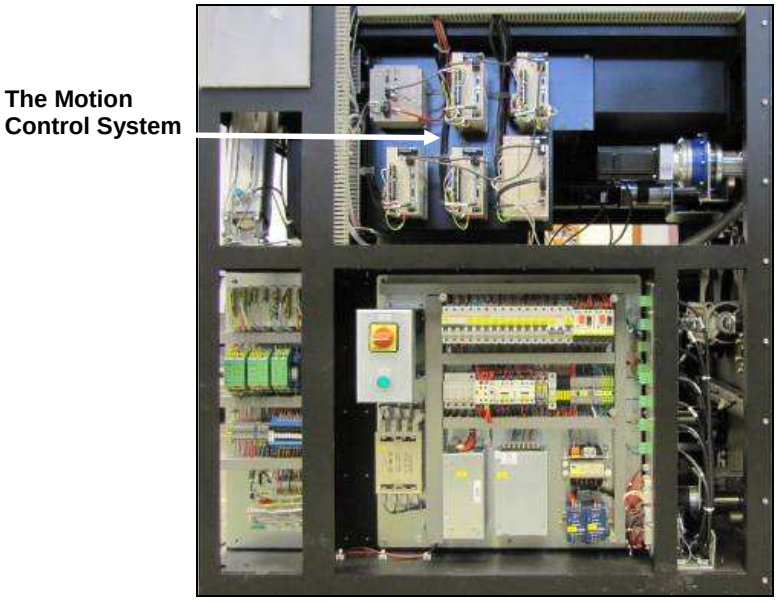


Figure 10: The Motion Control System

Pneumatic System

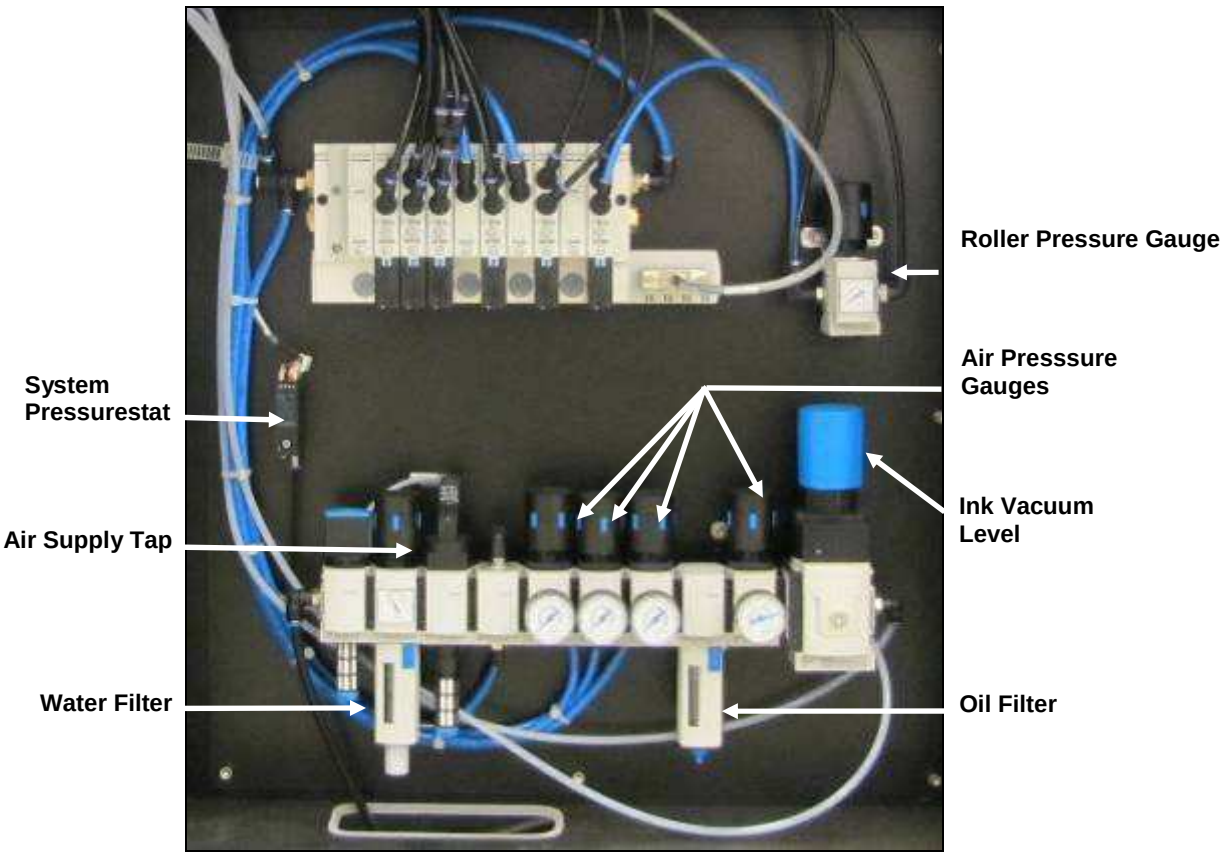


Figure 11: The Pneumatic System

Air Supply

The Air Compressor

- Check that the AIR COMPRESSOR is connected to the printer and is turned ON.

Air Pressure Gauges

- Check that the gauges are set to the pressure shown on their corresponding stickers, as shown in Figure 12, page 31.

The PNEUMATIC SYSTEM is accessible through the FRONT RIGHT ACCESS DOOR.

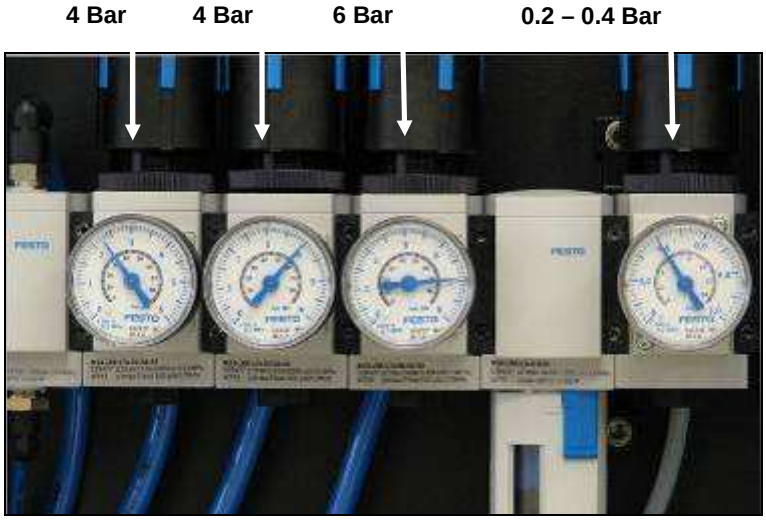


Figure 12: The Air Pressure Gauges

Ink Vacuum Level

The INK VACUUM LEVEL controls the ink so that it doesn't drip through the PRINT HEAD.

If the Ink drips from a PRINT HEAD, use the INK VACUUM LEVEL ADJUSTER, as shown in Figure 13.

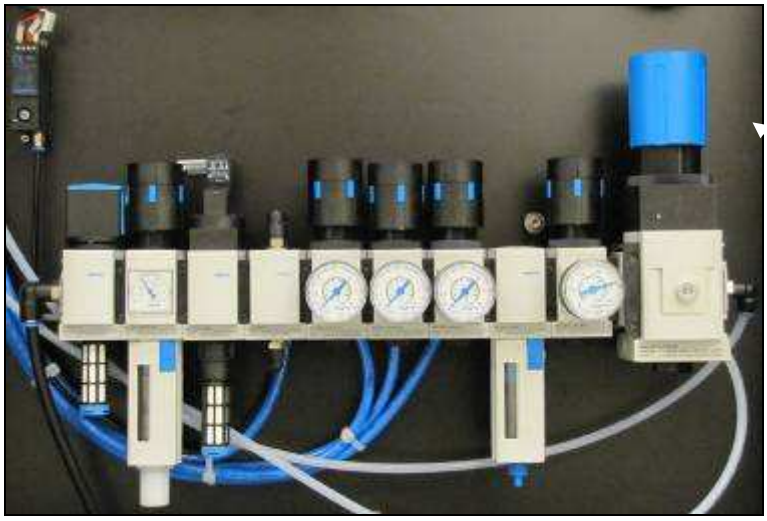


Figure 13: The Ink Vacuum Level Adjuster

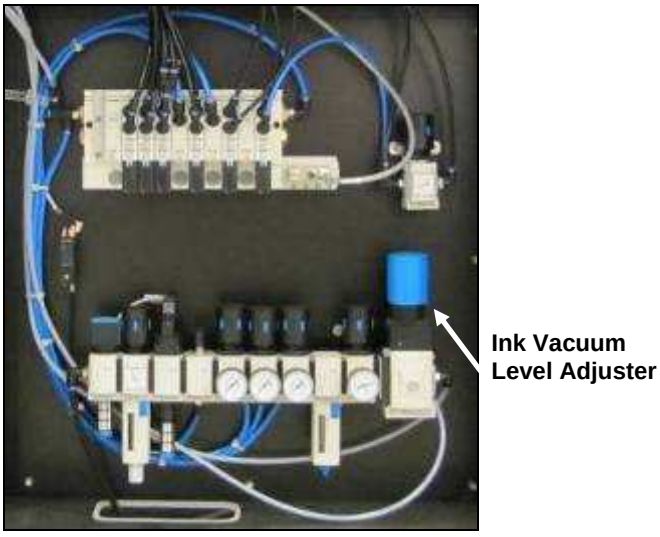
Vacuum System

Monitor the vacuum level using the digital INK VACUUM LEVEL GAUGE, which is inset into the CARRIAGE COVER and shown in Figure 14, page 32, page 32.

Figure 14: The Digital Vacuum Level Gauge

➢ To adjust the Vacuum Level

1. Bring the CARRIAGE to the right side of the printer so that you can both see the DIGITAL VACUUM LEVEL GAUGE on the CARRIAGE COVER (as shown in Figure 14) and make the necessary adjustments if required, with the INK VACUUM LEVEL ADJUSTER (as shown in Figure 13, page 31).
2. Adjust the vacuum (displayed on the digital VACUUM GAUGE,) to between -0.8 cm H_20 and -1.2 cm H_20, by turning the knob on the VACUUM ADJUSTER.
3. To increase the vacuum, turn the VACUUM ADJUSTER ***clockwise***, and to decrease it, turn it ***counter clockwise***, as shown below.



Filter System

The PNEUMATIC SYSTEM includes two filters: a water filter and oil filter, as shown in Figure 15. You should drain both these filters weekly, by turning the FILTER RELEASES in a ***clockwise*** direction and then closing them when all the water and oil have been drained.

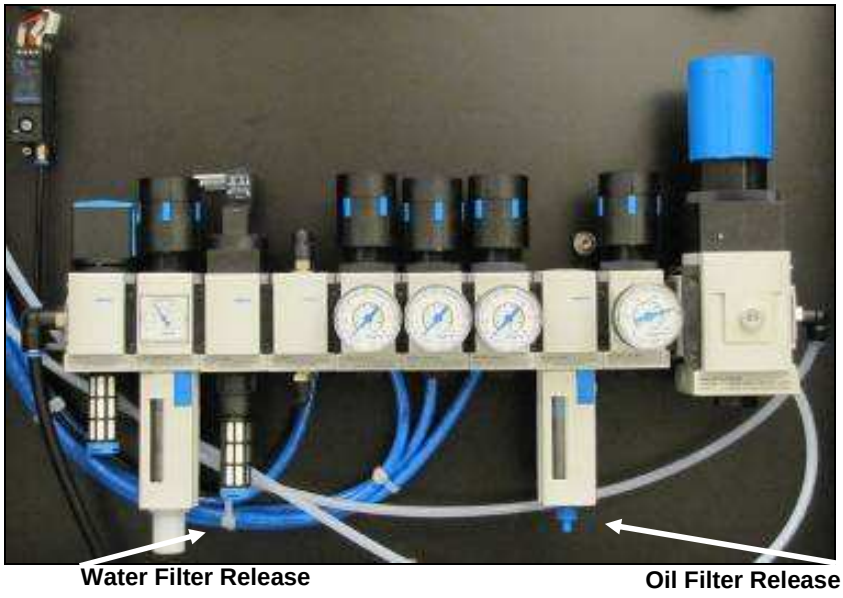


Figure 15: The Water and Oil Filters

Ink System

The following two figures show the MAIN INK SYSTEM, with different pumps.

The Ink Cabinet with Type A Pumps

The Ink Cabinet with Type B Pumps

The Ink

- Check that there is sufficient ink in all the four MAIN INK TANKS.
  The order of the inks' location (from left to right) is: Cyan, Magenta, Black and Yellow, as shown in Figure 16.

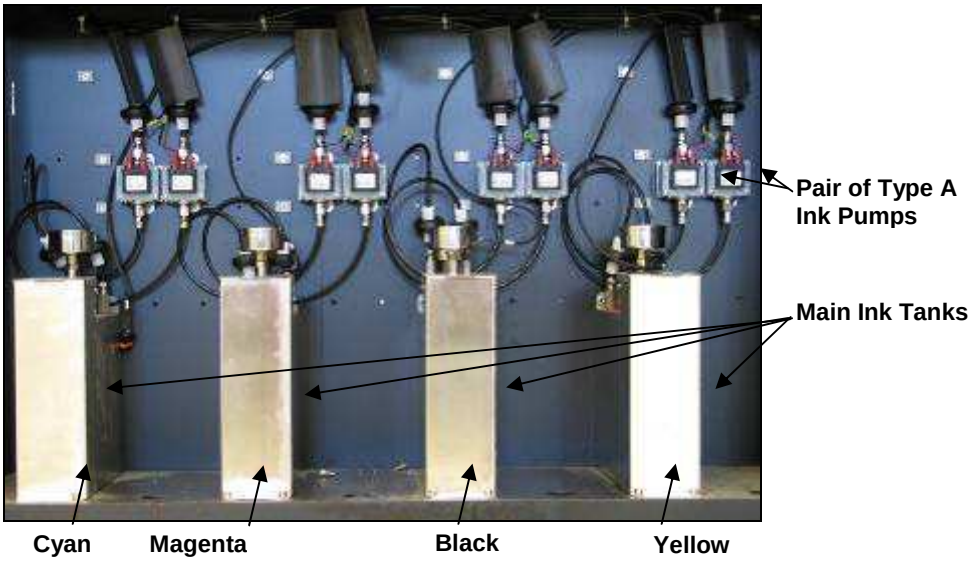


Figure 16: The Main Ink Tanks & Pumps (Type A)

The INK PUMPS (two for each color,) deliver the ink from the MAIN INK TANKS to the SECONDARY INK TANKS (two for each color) which are located on the CARRIAGE.

The components comprising TYPE B PUMPS, are installed in the same format as shown in Figure 77, page 157.

For full details of the printing procedures, see "Printing Procedures," page 117.

Ink Filters

Each of the four ink systems has its own four filters, two non-return valves and two protective sleeves, as shown in the following two figures.

You must make sure the all four protective sleeves are always covering their non-return valves. Otherwise, the ink will absorb light and prematurly commence the curing process.

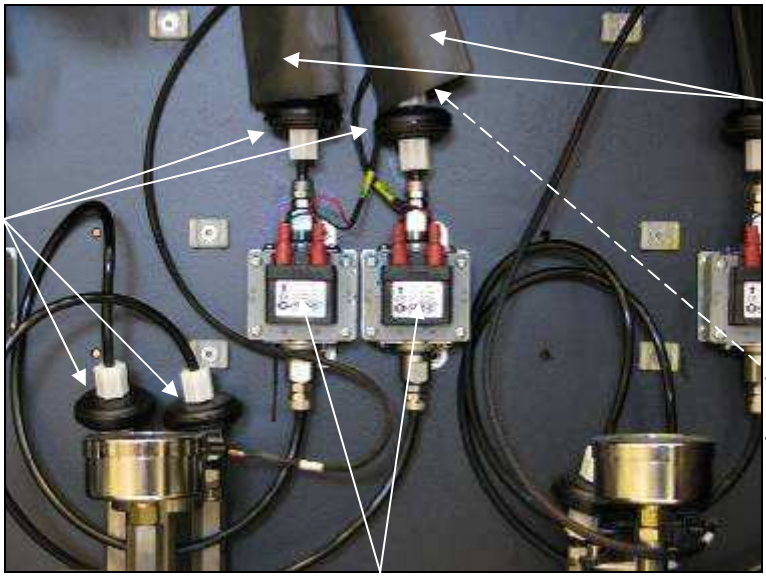

Four Ink Filters
Pair of Sleeves to protect the Non-return Valves from light penetration
Non-return Valve (covered by the sleeve)
Two Type A Pumps

Figure 17: The Ink Filters, Type A Pumps and Sleeves

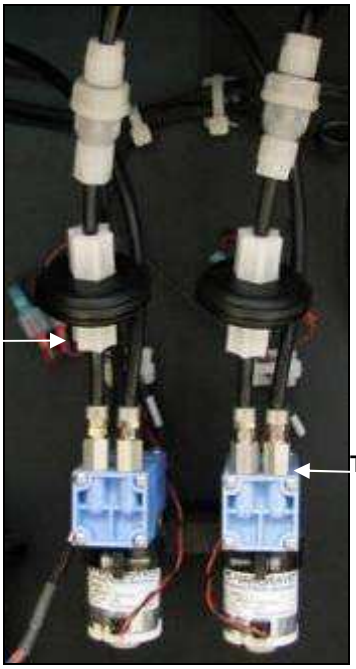


Figure 18: The Ink Filters, Type B Pumps and Non-return Valves

Ink Waste Tank

The INK WASTE TANK, shown in Figure 80, page 160, collects the waste ink from the tray located on the base of the CARRIAGE. It must be emptied every day before the printing session and before each shift.

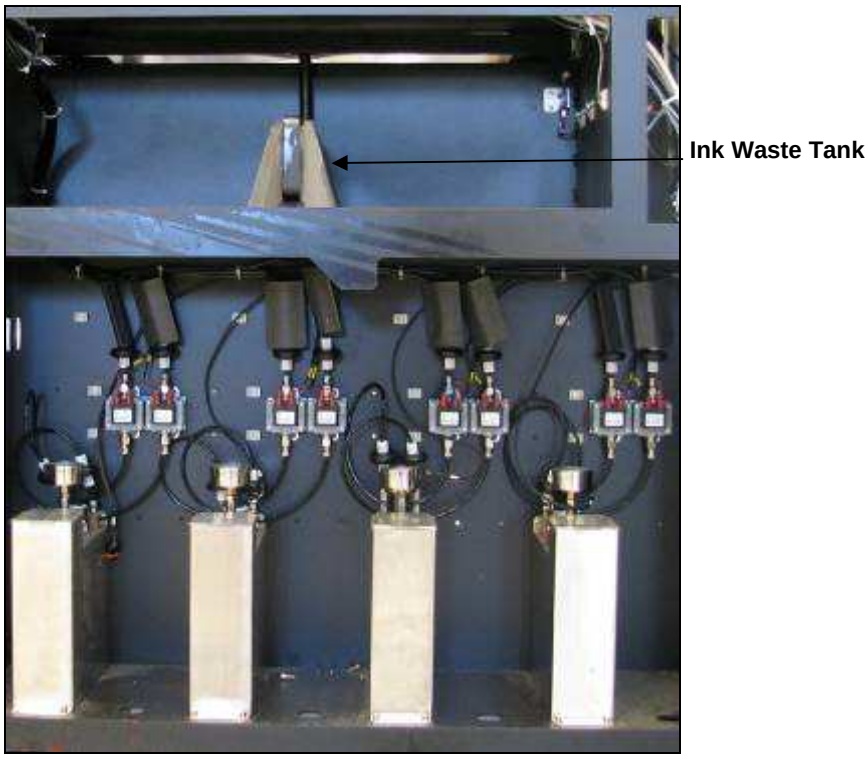


Figure 19: The Ink Waste Tank

Print Table Vacuum System

The PRINT TABLE VACUUM MOTOR is located at the right side of the printer, as shown below.

Figure 20: The Print Table Vacuum System

UV Lamps System

The printer has two ULTRA VIOLET LAMP ASSEMBLIES. Each assembly is mounted on the side of the CARRIAGE, as shown in Figure 21.

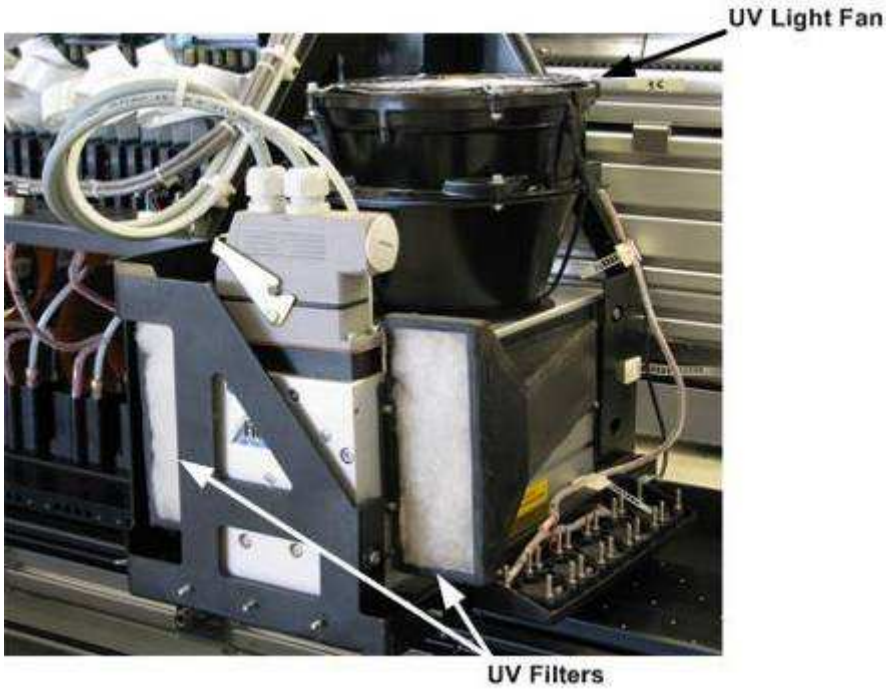


Figure 21: The UV Lamp Assembly

The UV filters must be changed at least once a day.

UV Lamps Power Supply

The UV Lamps are powered by the two UV LAMPS POWER SUPPLY UNITS located at the right side of the printer, and shown in Figure 22.

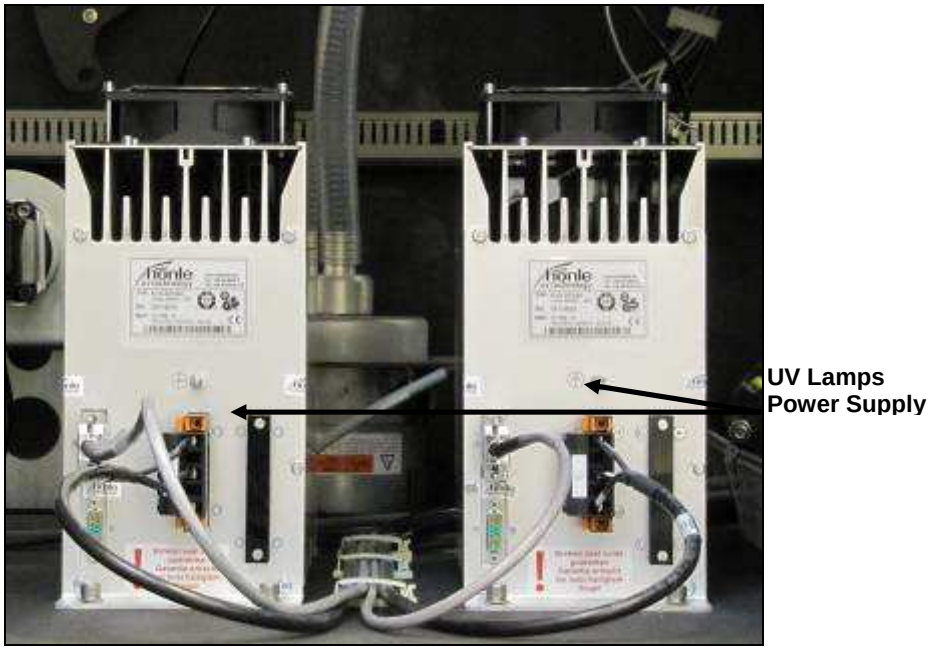


Figure 22: UV Lamps Power Supply Units

The MUC

The MUC (Micro-Universal-Controller) is an all-purpose lamp controlling unit for use in one or two lamp systems. It is completely responsible for all signal handling, analysis and failure monitoring. All information and error-modes can be read from the MUC Client which is accessible from the MUC Report in the View menu, as shown below.

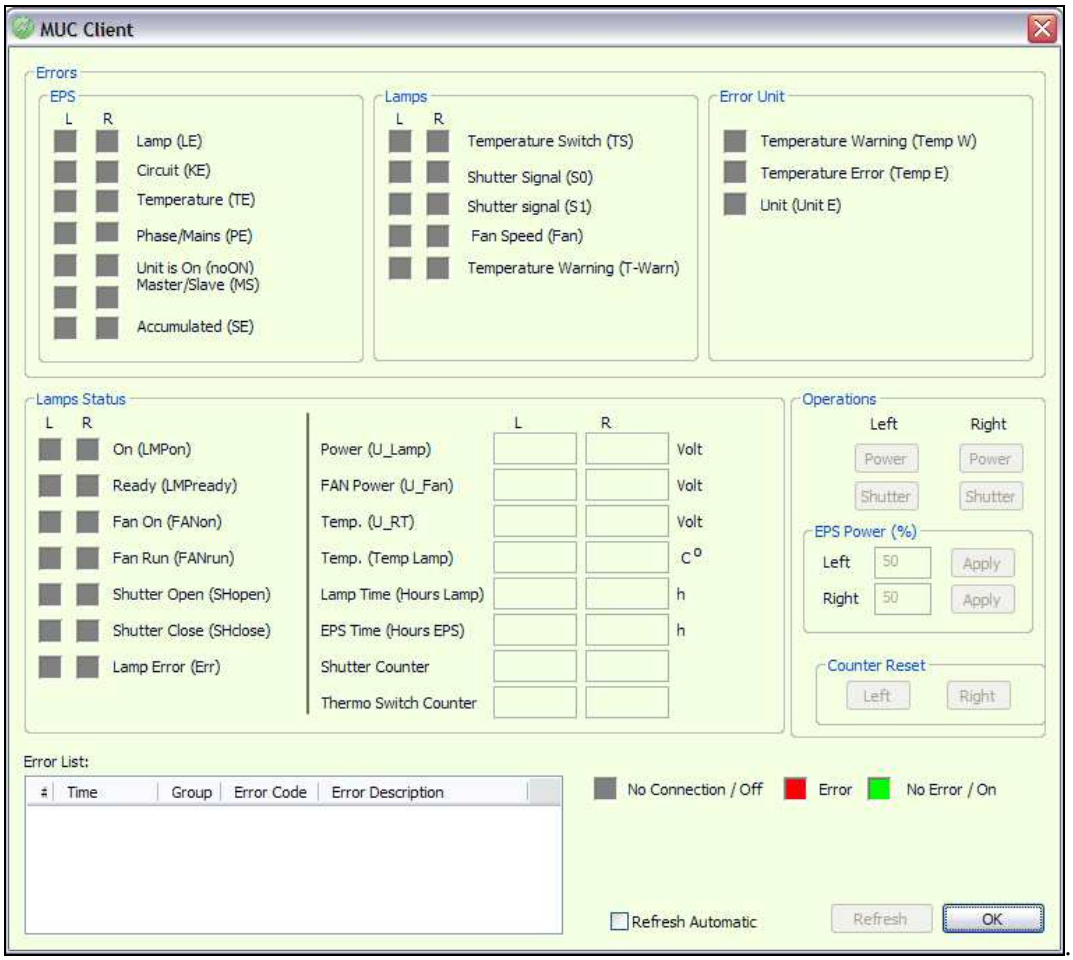


Figure 23: MUC Control Panel

Operator's Controls

Front Control Panels

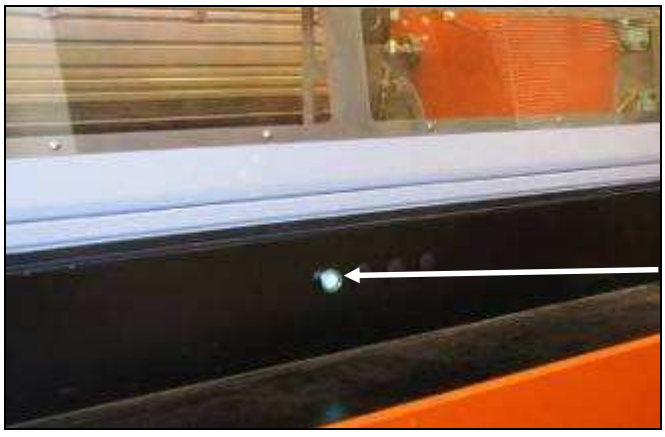
There are five OPERATOR'S CONTROL BUTTONS located on the left side of the front of the printer, as shown in Figure 24.

Figure 24: The Operator's Control Buttons

The following table describes the function of each of the buttons.

Button	Function
Flatbed	To raise / lower the Flatbed pistons.
Free Fall	To open / close the Free-Fall pistons.
Hood	To open / close the Hood.
Wings Switch	To raise / lower the Wings.
Vacuum Regulator	To adjust the vacuum suction level.

The Backlit LED ON/OFF BUTTON, if installed, is located on the right side of the front of the printer, as shown below.



Rear Control Panel

Figure 25: The Rear Control Panel

The REAR CONTROL PANEL is located at the rear of the printer, above the INK CABINET. It comprises the following two switches:

- **Shaft**: To activate the SHAFT – for loading media or the optional FLATBED printing.
- **Press**: To press on the media to apply tension.

Emergency Stop Buttons & Cord

See the Safety section of this document.

.

7 Powering Up and Shutting Down the Printer and RIP Station

You must turn on the printer before you turn on the RIP STATION.

Powering up and shutting down the Printer

1. Check that the printer is connected to the electricity supply.

   The POWER CABLE has been connected to your printer by Matan's technician. The CONNECTOR is located on the right side, behind the printer's right-hand panel, as shown below.

2. Turn the MAIN SWITCH (located on the left side, at the rear of the printer,) clockwise, to the ON position, as shown below.

3. Push the green POWER SUPPLY INDICATOR button.

   The button lights up.

   If you have not already done so, boot up the printer’s Workstation.

Start-up Procedure

	Action			Frequency
	Check	**Clean**	**Switch ON**	
Emergency stop switches –"OFF"	✓			Every day before starting to print
Main power switch			✓	
"Start" button			✓	
Start SW Barak FE			✓	
Check and remove any foreign objects from the Print Table and perform INIT. (Clear objects from table.)	✓		✓	
Print Heads - Purge, clean & nozzle test	✓	✓		

Activating the Program

1. From the Workstation's Desktop, double-click BARAK FE icon.

   The BARAK MAIN SCREEN appears.

If the Maintenance Alert window appears, see "Daily Maintenance," page 164.

2. Make sure that the PRINT TABLE is clear of any foreign objects and that there are no other obstructions.
3. Click INIT.

   When you click INIT, the CARRIAGE is activated and 'learns' the machine. It applies all the preset parameters, such as PRINT HEAD voltage settings. During this procedure, the CARRIAGE will move along the X-axis of the printer, and back.

Powering up the RIP Station

- Turn on the RIP STATION.

Shutting down the RIP Station

- Turn off the RIP STATION.

Shut-down Procedure

Unless there is an ***emergency***, do not use the Emergency Stop Buttons or Cord to turn off the printer.

When turning off the printer, follow the shut-down procedure.

	Action			Frequency
	Check	**Clean**	**Switch off**	
UV Power off			√	Every day before shut-down
Purge & Clean heads		√		
Wait until UV lamps cool off and have stopped	√			
Close SW & Switch off computer			√	
Main power switch			√	

8 Around the Windows

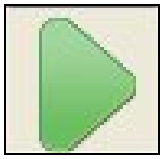
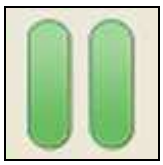
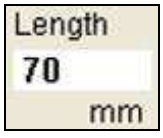
This chapter describes the main windows and dialog boxes.

Around the Main Screens

Main Icons

Top Toolbar Icons/Components

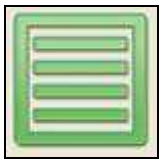
The following table describes the function of the top toolbar icons and components.

Icon/Component	Function or description
	Returns Carriage to the Home position.
	Prints the job. When activated, this icon changes to the Pause icon.
	Pauses the print at the end of the pass so that the Carriage stops at the Home position.
	Stops the printing immediately.
	Moves Media forward according to value in Length Box
	Length Box . Distance of Media advance or reverse.
	Moves Media backwards according to value in Length Box.

Icon/Component	Function or description
	Pressing this icon will move the Carriage to the left until the icon is released.
	Pressing this icon will move the Carriage to the right until the icon is released.
	Initializes the printer.
	Applies tension to the Media.
	No Init – the printer has not been initialiazed. Machine Status – displays the printer's status: **Idle**, **Printing**, **Pause**, **& Initializing**

Left Toolbar Components

The following tables describe the components of the LEFT TOOLBAR.

Icon	Function or description
	One Job: Displays the Main Screen for One File printing.
	Queue: Displays the Main Screen for Print Job Queuing.
	Control Panel: Displays the Main Screen's Control Panel for defining the printer's settings

Other Toolbar Icons

The following table describes the function of the icons not mentioned above.

Icon	Function or description
	OK: Save the settings.
	Cancel: Cancel the settings

Main Screen – Control Panel

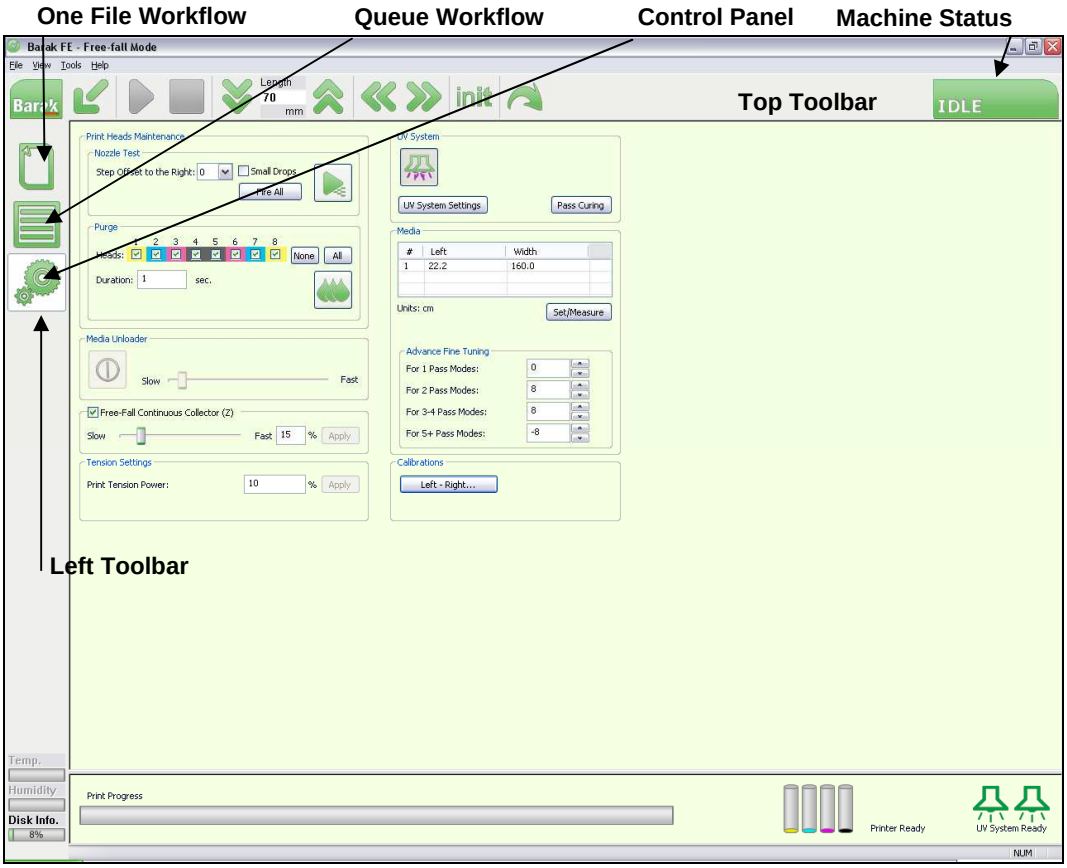
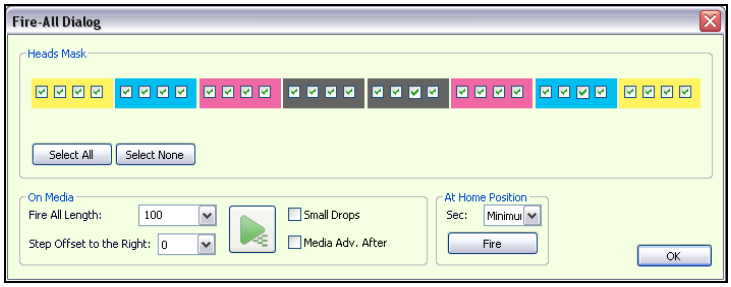
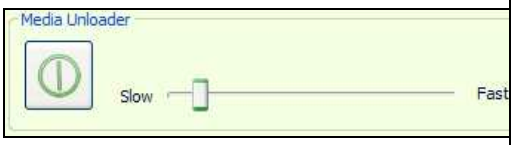
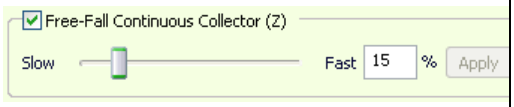


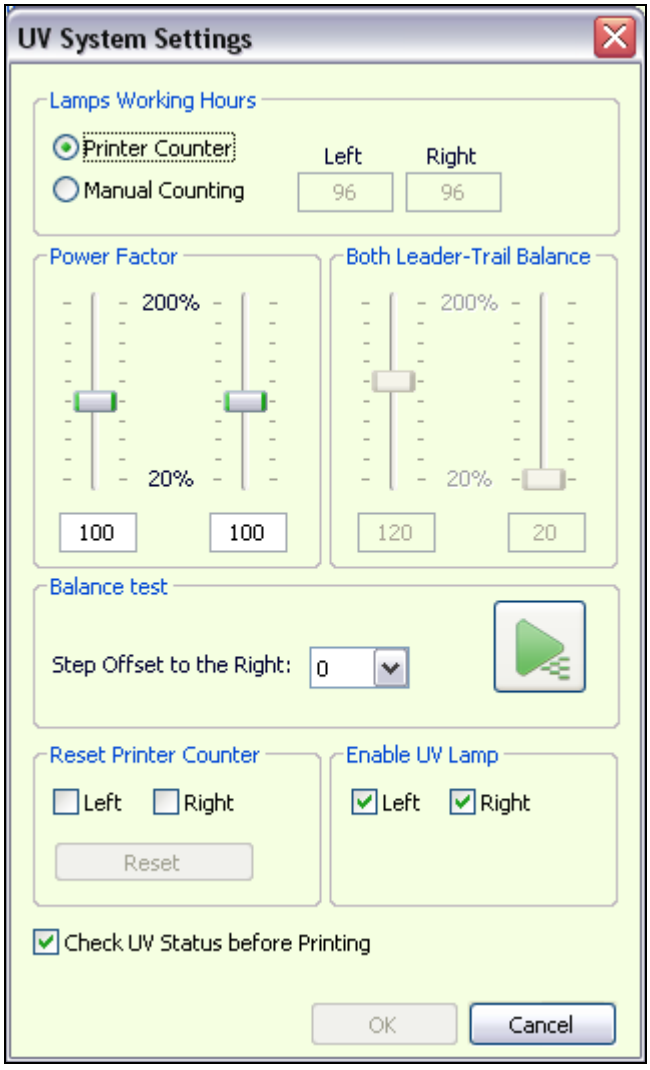
Figure 26: The Main Screen – Control Panel

Screen Components

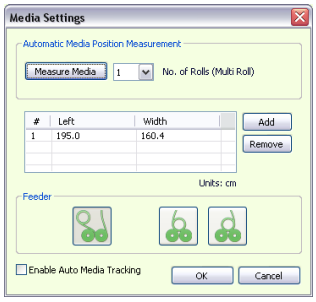
	Screen Component or Group Box	Function or description
Print Heads Maintenance	Nozzle Test	**Step Offset to the Right:** Prints the next Nozzle Test to the right of the previous one, until there is no more room on the X-axis. A message appears stating that there is no more room. You must now advance the media manually, according to the value in the Length Box (default 70 mm). You then put the Step Offset back to zero and then print the next Nozzle Test at the zero position. **Small Drops:** When checked, the Nozzle Test Target will be printed with small drops.
Fire All:		
Fire-All Dialog	Heads Mask	**Select All**: Selects all Print Heads for firing. **Select None**: Selects no Print Heads for firing.
	On Media	**Fire All Length**: Choose or enter the required value. **Step Offset to the Right**: Prints the next Nozzle Test to the right of the previous one, until there is no more room on the X-axis. Then prints the next Nozzle Test on the next line. **Print Nozzles** **Small Drops:** When checked, the Fire All Target will be performed with small drops **Media Adv After**: The media advances after printing, according to the value in the Length Box.
	At Home Position	Sec: Specify the duration**.** Fire – Fires at the Home position.

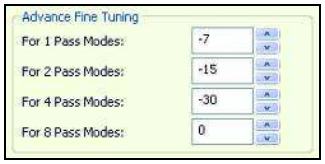
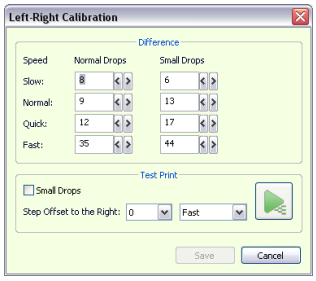
Purge	**Heads** **None** **All** **Duration** **Heads** 	Select which heads to purge. Don't purge any heads**.** Purge all heads. Length of purge – up to five seconds. Select which heads to purge. Purge
Media Unloader 		Activates and controls the Media Unloader's speed. Only for the Roll-to-Roll printing mode.
Continuous Collector (Z) 		If checked, the Collector Roll will revolve continuously until the printing has finished. Control the speed using the slider or enter a value. If not checked, the Free-Fall Collector Roll will advance in defined steps, according to the Media Advance.
	Slow —Fast /%	When in Continuous mode, controls the Collector rotation speed.
Tension Settings	**Print Tension Power**	Controls the motor's force.
UV System		Turn ON/OFF UV Lamps

UV System Settings



	LAMPS Working Hours	**Printer Counter:** Automatically counts the number of working hours for each lamp. **Manual Counting:** Manual insertion of hours worked by each lamp.
	Power Factor	Adjusts the power factor according to the accumulated number of hours that the lamps have been used, as required.
	Both Leader – Trail Balance	Not implemented.
	Balance Test	Prints a Target Test to check the UV power balance.
	Reset Printer Counter	Resets the UV lamp counters.
	Enable UV Lamp	Enables you to work with one lamp if the other is malfunctioning.

	Check UV Status before printing	Causes the printer to check the UV lamps before printing and displays a message if they are not ready.
	Pass Curing	The Carriage makes a pass in both directions and cures any uncured ink
Media		
	Set/Measure 	Opens the Measure Media dialog
	Measure Media	Automatic measurement of the media roll/s installed on the printer.
	Left	The distance between the Left Side Plate and the left edge of the media. If you are printing Multi-Roll, the distance between the Left Side Plate and the left edge of each roll is displayed in the Media Status group box.
	Width	The width of each of the Media Rolls installed.
	Feeder	Media installed on external feeders. Media installed internally – face-in. Media installed internally – face-out.

	Enable Auto Media Tracking	Enables the Auto Media Tracking option. This feature adjusts the printing according to the media skew. The default is OFF.
	Advance Fine Tuning 	Enables the fine tuning of the Media Advance feature, in units of 10 microns.
Calibrations	Calibrations 	Accesses the Left-Right Calibration dialog box.
		Calibrates the positioning of head firing in bi-directional printing, in units of pixels. Also accessed from Calibrations in the Tools menu.

Main Screen – Queue

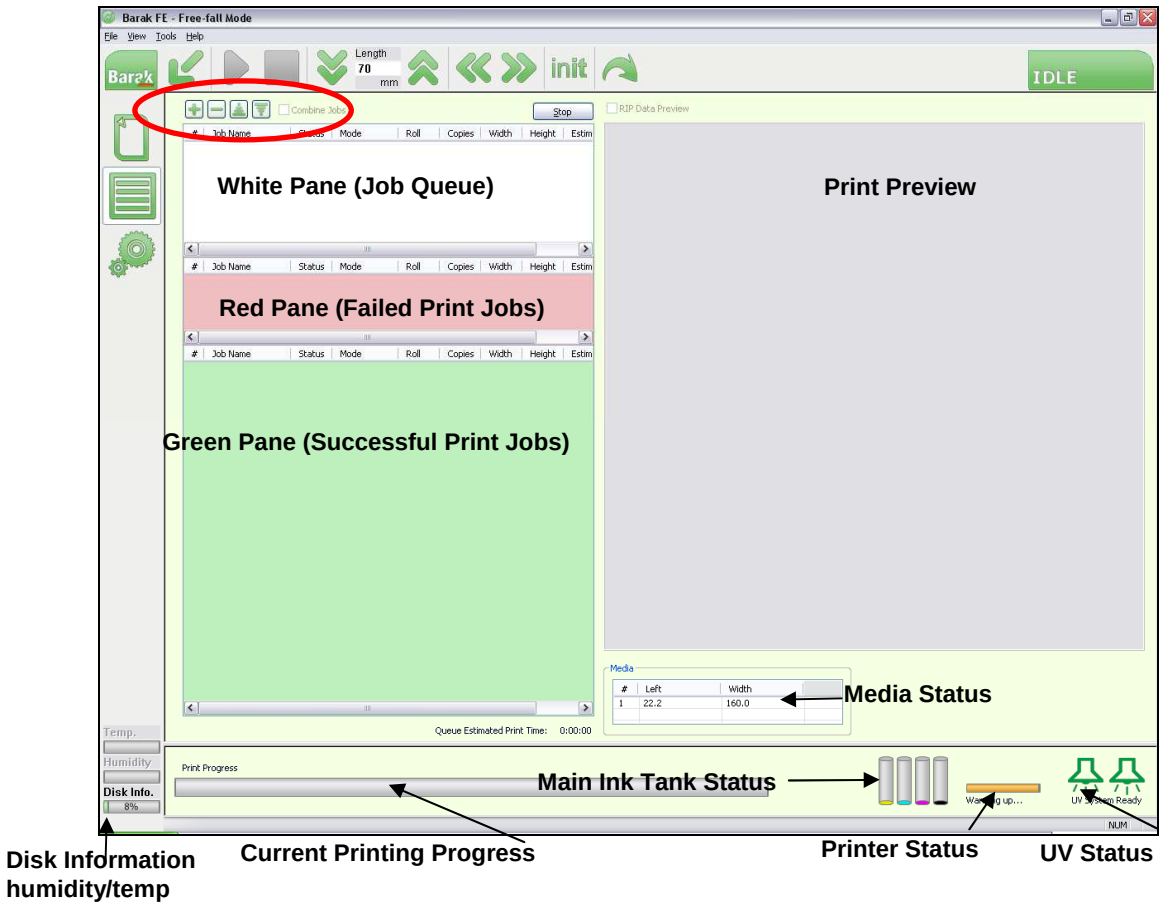
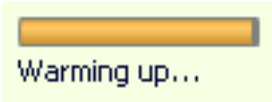
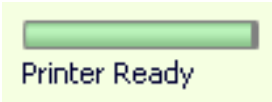


Figure 27: The Main Screen – Queue Workflow

Screen Component or Group Box	Function or description
	Add job to Job Queue. Delete job from any pane. Move job up in Job Queue. Move job down in Job Queue. Combine Jobs. Activates the Combine Jobs option.
	Stops the queue printing at the end of the current job.
White Pane	Displays the print jobs waiting in the print queue.
Red Pane	Displays the failed print jobs (i.e. those whose printing was not completed).
Green Pane	Displays the print jobs that have been successfully printed.

Media Status	Displays the location and width of the media.
	Displays the ambient temperature. Displays the ambient humidity. Displays the amount of hard disk that has been used.
Print Progress	Displays the progress of the currently printed job.
Ink Tank Status	Indicates the amount of ink present in each of the MAIN INK TANKS.
Printer Status	The PRINTER STATUS is orange and indicates WARMING UP. If the temperature of any of the inks does not reach the required level, the status bar remains orange.  When the system is ready for printing, the PRINTER STATUS bar turns from orange to green. The PRINTER STATUS bar indicates PRINTER READY.  Double-click the status bar—the PRINTER STATUS dialog box appears.

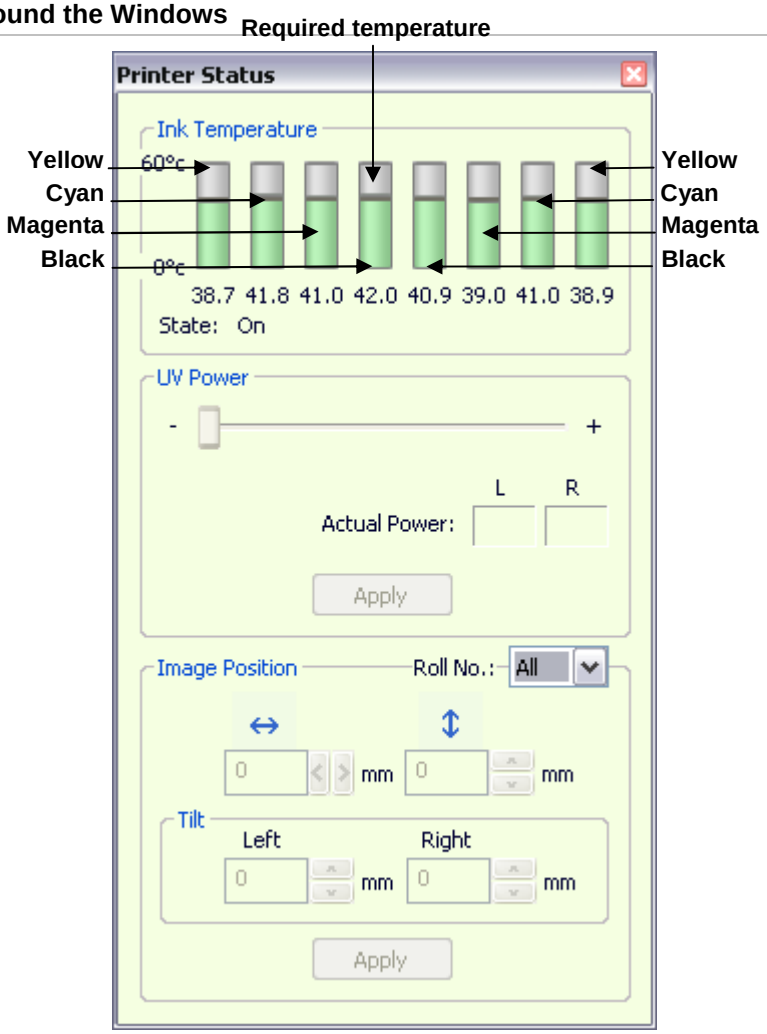


Figure 28: The Printer Status dialog box – Backlit installed

Screen Component or Group Box	Function or description
Printer Status dialog box: Ink Temperature	Displays the temperature of the ink at the SIT. Each SIT is displayed as a bar in the Printer Status dialog box. The bar shows orange while the ink is being heated, green when it reaches th required temperature, and red if it is exceeded. The order of colors is shown above.
UV Power	Enables you to adjust the UV power during printing.
Image Position	You can adjust the Image position from the PRINTER STATUS dialog box, during printing. When printing the back side of a Backlit job, Tilt is also available.

UV Status	The UV Lamps are set to reach their required power output. When this is reached, their color on the screen changes from gray to green and the UV STATUS will indicate UV SYSTEM READY.

Main Screen – One Job

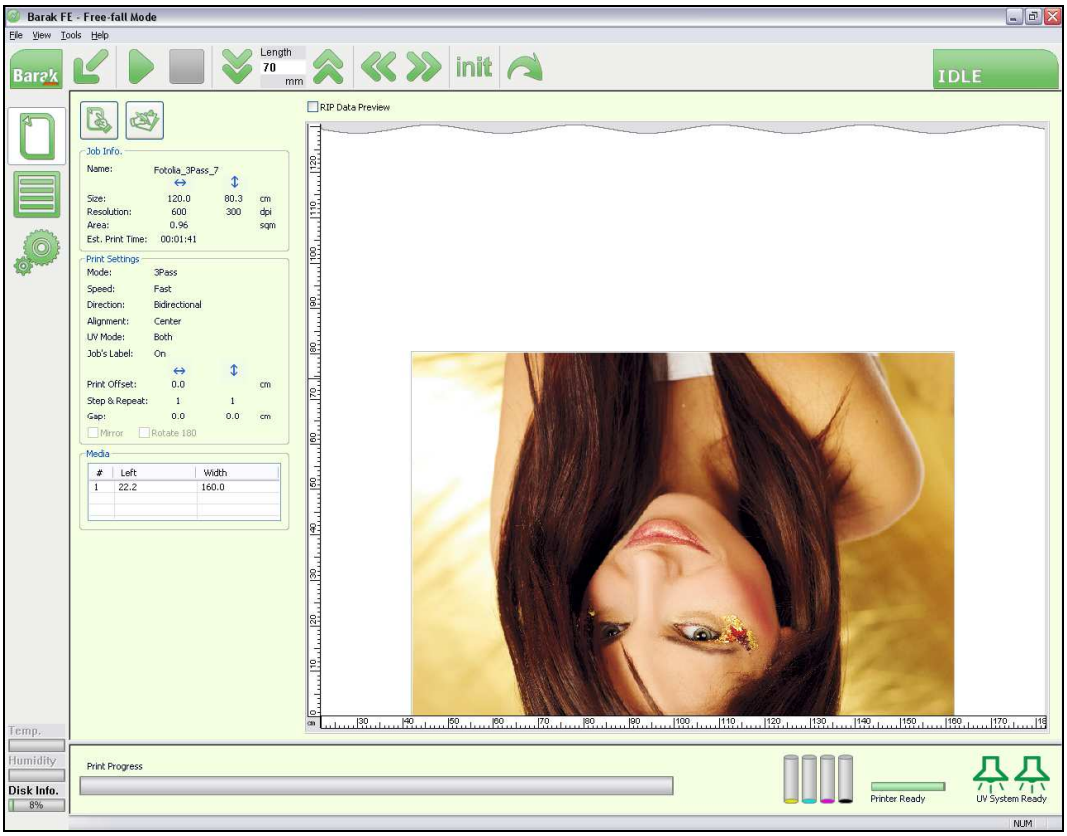
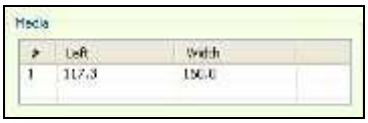
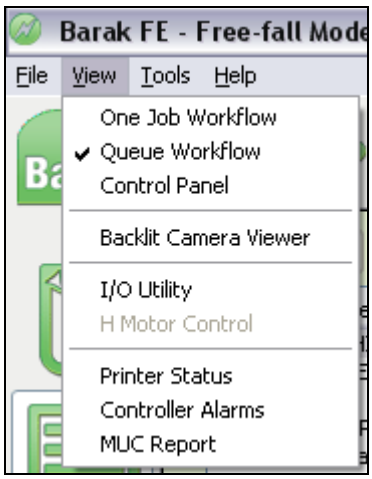


Figure 29: The Main Screen – One Job Workflow

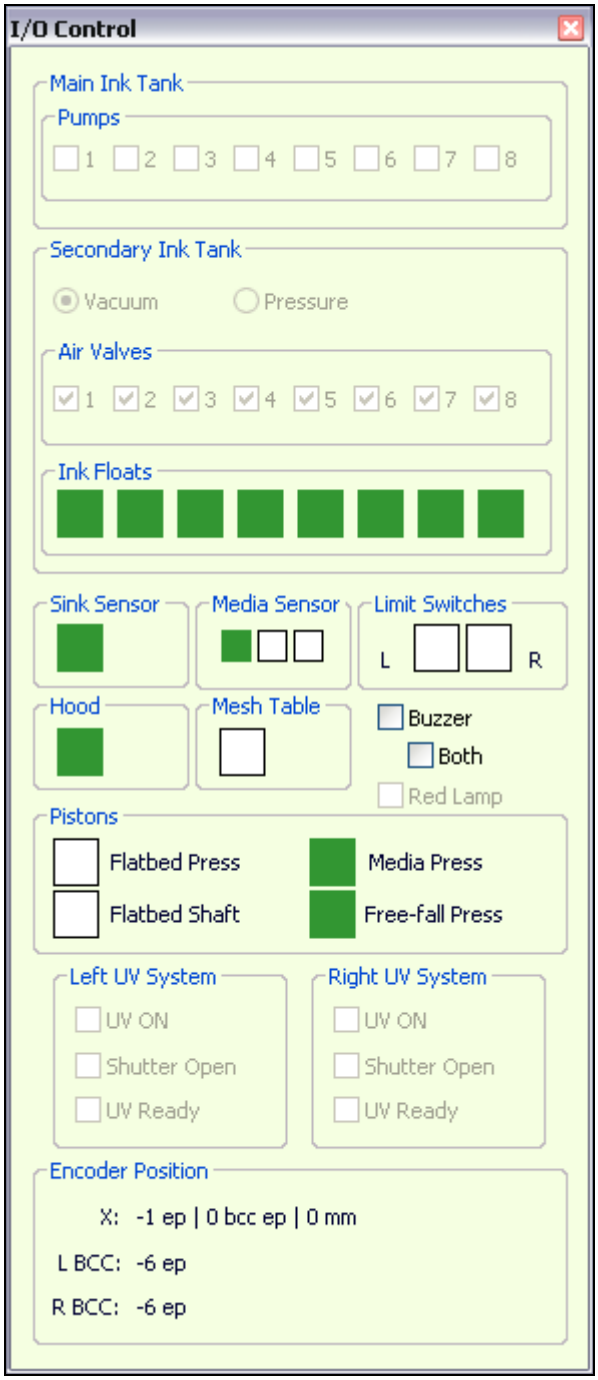
Icon	Function or description
	Imports a new Job.
	Opens the Job Settings dialog box.

Screen Component or Group Box	Function or Description
Job Info.	
Size: Resolution: Area: Est. Print Time:	The size of the job. The job's resolution. The print area. The estimated print time.
Print Settings: Mode Speed Direction Alignment UV Mode Job's Label	 The Print Mode. The Carriage speed. Uni or bi-directional printing. The file's alignment with the media—left, right, or center. Which UV lamps are lit—leader, trail or both lamps. Shows if the job's label is set for on or off.
Print Offset	Shows the offset.
Step and Repeat	Shows number of copies in the horizontal (if media width allows it) and vertical axis.
Gap	The gap between step and repeat copies.
Media Status 	Shows the Measure Media results.
RIP Data Preview	When there isn't a preview file in the 'mjob' folder, the Barak FE creates a preview by calculating the four separation files.

View Menu


Barak FE - Free-fall Mode
File
View
Tools
Help
One Job Workflow
Queue Workflow
Control Panel
Backlit Camera Viewer
I/O Utility
H Motor Control
Printer Status
Controller Alarms
MUC Report

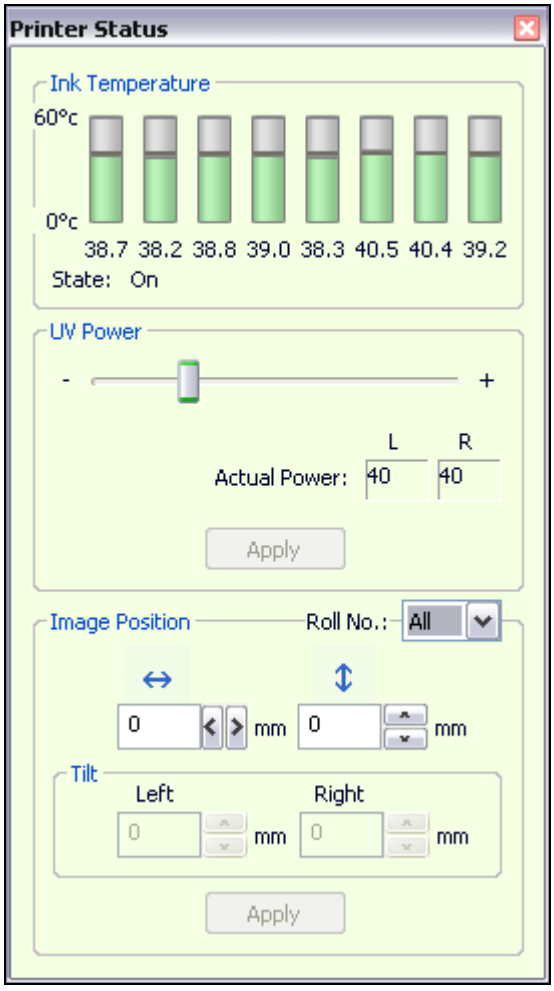
I/O Control



Menu Option	Function or description
Main Ink Tank	For use in Engineer Mode only.
Secondary Ink Tank	For use in Engineer Mode only.
Ink Floats	When all the indicators are green all the SITs are full.
Sink Sensor	Indicates if INK TRAY is open or closed (green).

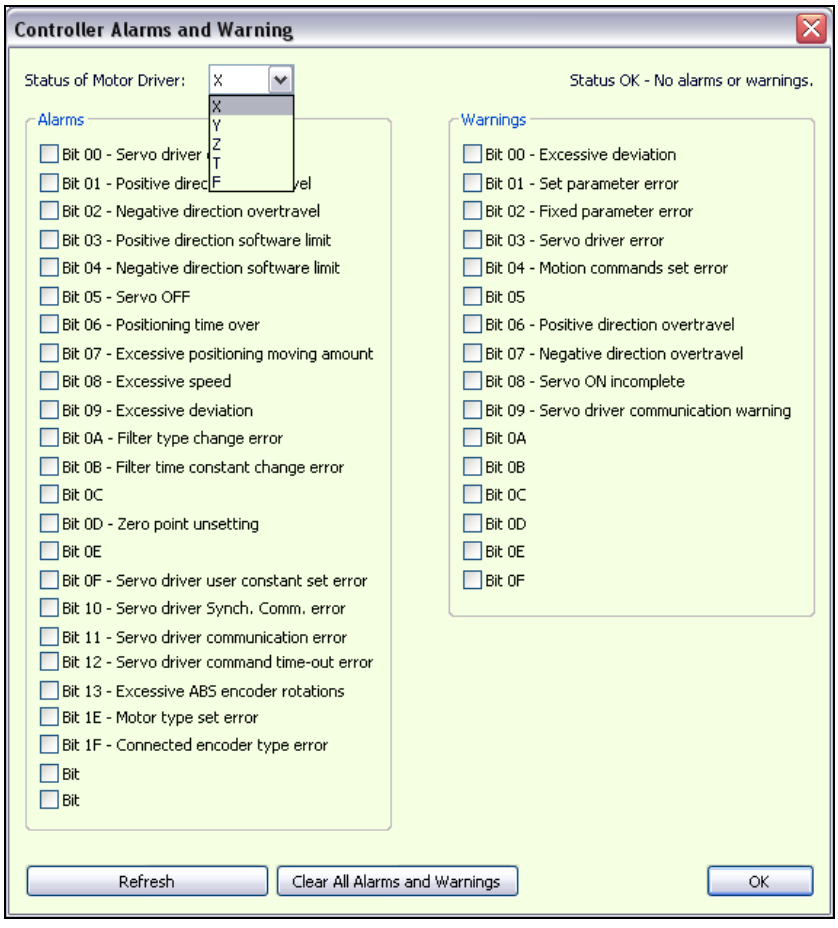
Menu Option	Function or description
Media Sensor	Indicates if the MEDIA SENSOR is activated (green).
Limit Switches	Indicates if the LIMIT SWITCHES are activated (green).
Hood	Indicates if the HOOD is open or closed (green).
Mesh Table	Indicates if the PRINT TABLE'S Wings are up or down (green).
Buzzer/Both/Red Lamp	For use in ENGINEER MODE only.
Pistons	Indicates which PISTONS are down.
Left/Right UV System	For use in ENGINEER MODE only.
Encoder Position	For use in ENGINEER MODE only.

Ink Temperature



Menu Option	Function or description
Ink Temperature	Displays the Ink Temperature for all eight SITs.
UV Power	Adjusts UV Power during printing.
Image Position	Moves the image during printing. Roll No. Specifies to which roll the position setting is applicable.
Tilt	This option is only activated when the printer is printing the back side of a backlit job.

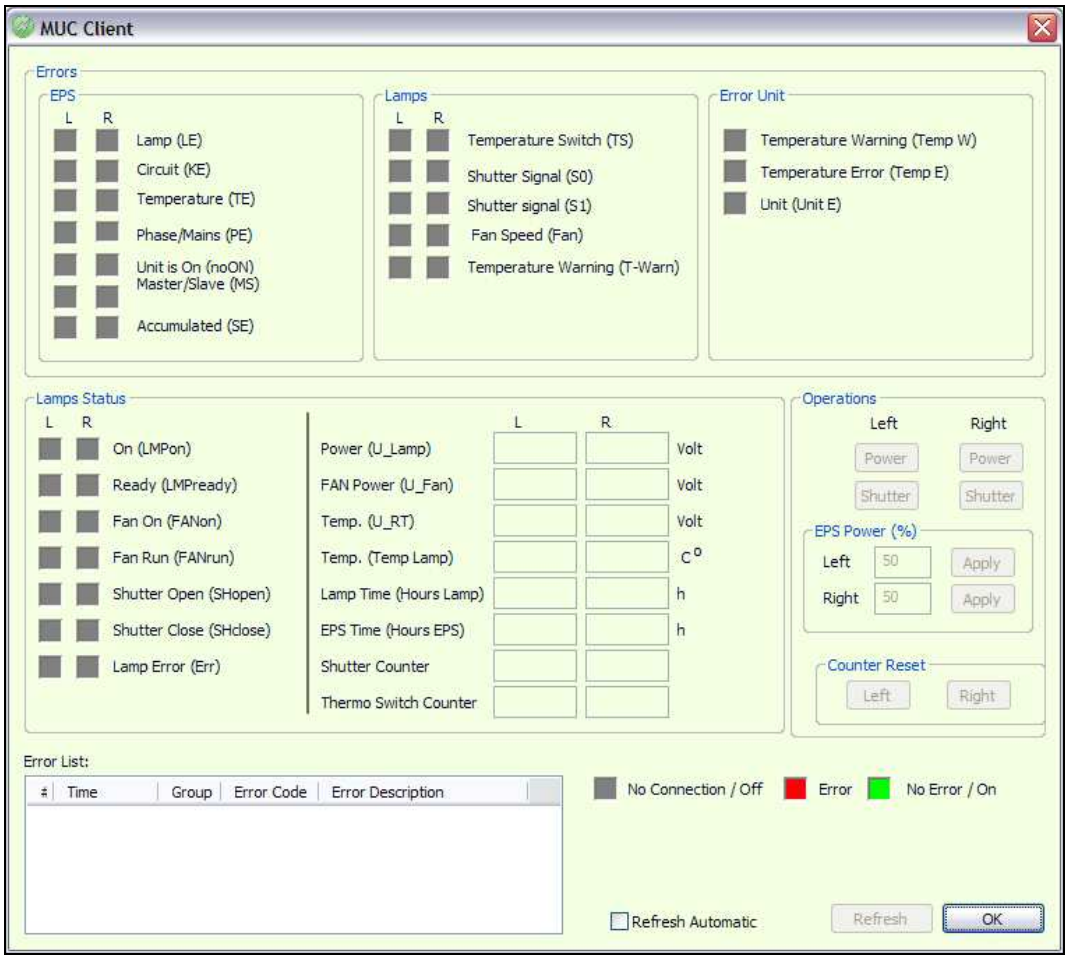
Controller Alarms and Warnings


Controller Alarms and Warning
Status of Motor Driver:
X
Y
Z
T
F
Status OK - No alarms or warnings.
Alarms
Bit 00 - Servo driver
Bit 01 - Positive direc vel
Bit 02 - Negative direction overtravel
Bit 03 - Positive direction software limit
Bit 04 - Negative direction software limit
Bit 05 - Servo OFF
Bit 06 - Positioning time over
Bit 07 - Excessive positioning moving amount
Bit 08 - Excessive speed
Bit 09 - Excessive deviation
Bit 0A - Filter type change error
Bit 0B - Filter time constant change error
Bit 0C
Bit 0D - Zero point unsetting
Bit 0E
Bit 0F - Servo driver user constant set error
Bit 10 - Servo driver Synch. Comm. error
Bit 11 - Servo driver communication error
Bit 12 - Servo driver command time-out error
Bit 13 - Excessive ABS encoder rotations
Bit 1E - Motor type set error
Bit 1F - Connected encoder type error
Bit
Bit
Warnings
Bit 00 - Excessive deviation
Bit 01 - Set parameter error
Bit 02 - Fixed parameter error
Bit 03 - Servo driver error
Bit 04 - Motion commands set error
Bit 05
Bit 06 - Positive direction overtravel
Bit 07 - Negative direction overtravel
Bit 08 - Servo ON incomplete
Bit 09 - Servo driver communication warning
Bit 0A
Bit 0B
Bit 0C
Bit 0D
Bit 0E
Bit 0F
Refresh
Clear All Alarms and Warnings
OK

Menu Option	Function or description
Status of Motor Driver	The motor whose alarms and/or warnings are displayed.
Alarms	List of alarms
Warnings	List of warnings

Clear All Alarms and Warnings	Clears the alarm/s and/or warning/s that are displayed.
Refresh	Refreshes the window and displays any alarms or warnings. If the warnings and alarms persist, shut down the printer and restart it.
Status OK	Displayed when no alarms or warnings are shown.

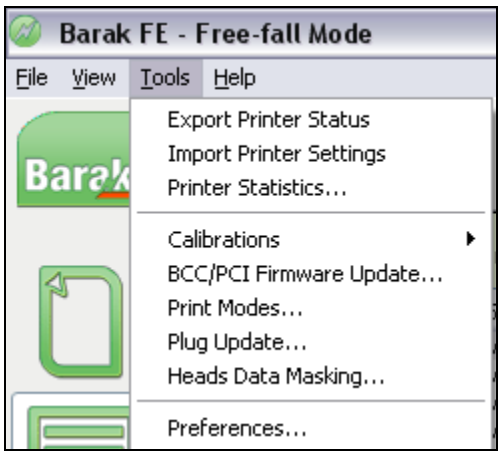
MUC Report



This window displays the UV System status.

If any of the indicators are displayed in red, please contact Matan Support.

Tools Menu



Export Printer Status

Saved as a zipped file, containing the information such as:

- Log files — `BarakLog` All errors that generated error messages.

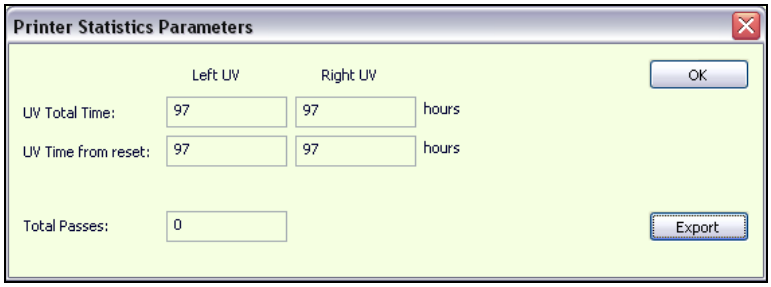
  `JobHistoryLog` — History of printed jobs, such as the amount of ink consumed and media used.

  `UserSettingsLog` — All changes to the printer settings, such as advanced fine tuning, tension, and UV power.
- Application Settings.
- Statistics from the HASP dongle.
- Printer Status.

Import Printer Settings

- Imports the application's pre-saved settings (for further use).

Printer Statistics



Menu Option	Function or description
UV Total Time	The total time that the UV lamp has been lit.
UV Time from Reset	The total time that the UV lamp has been lit since the last Reset.
Total Passes	The total number of passes that the printer has made (since installing Version 3).

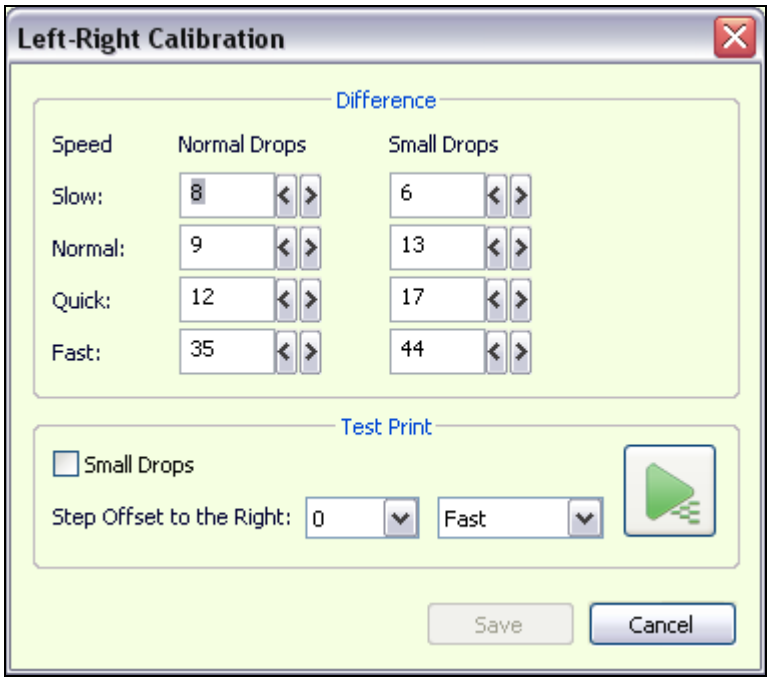
Calibrations

Voltage Calibration –*Normal*

Voltage Calibration – Small

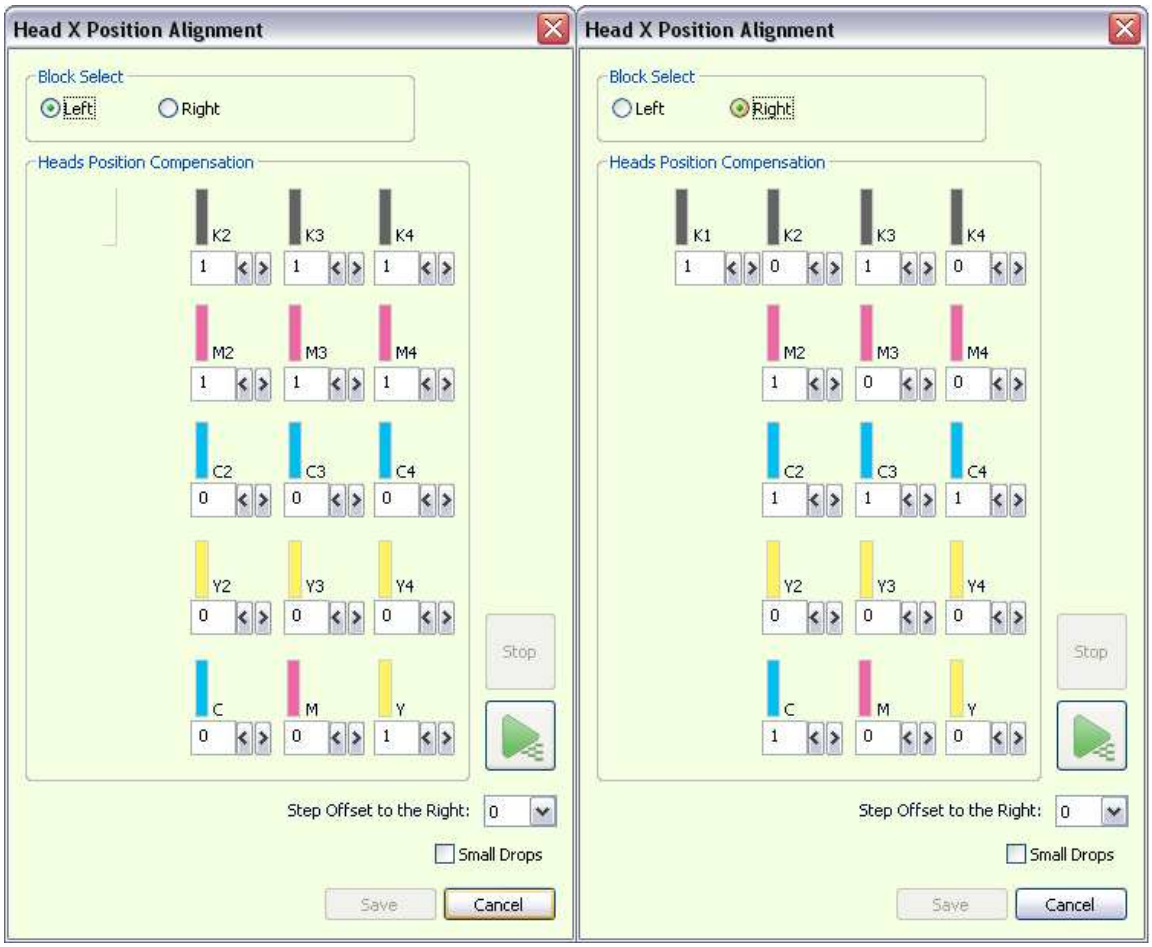
Menu Option	Function or description
Block Select: Normal/Small	For use in Engineer Mode only. The only relevant columns for you to refer to (if asked to by a Matan Technician, are Volt and Reply). The Volt values are what the Print Head has to work with. The Reply values are used to monitor the voltage and to show if there is a difference between their values and those of Volt. The tolerance is ±0.5v.
Select	
Delta Drop Size	
Update	
Calibration Test Print	
Heads-Voltage Lookup Table Generation	

Left-Right



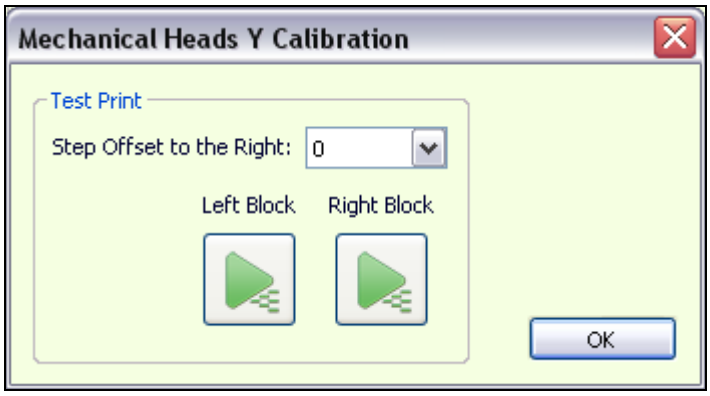
Menu Option	Function or Description
Normal Drops	The difference between the left and right offset.
Small Drops	The difference between the left and right offset, for the small drops.
Small Drops (check box)	When checked, the L-R target will be printed with small drops.
Test Print	To run a Test Print.

Heads X position



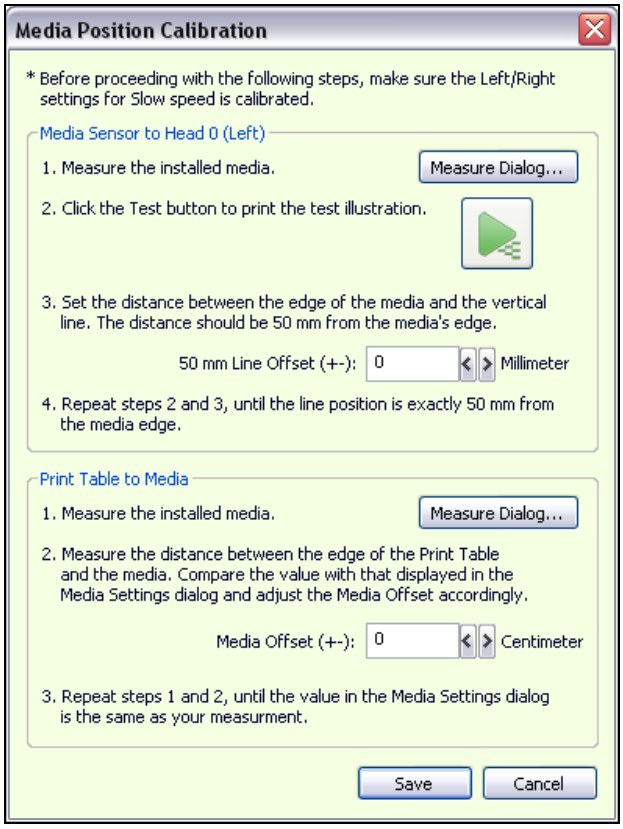
The Head X Position Alignment dialog box as shown above, is for the use of Matan's engineer only.

Heads Y Mechanical Position



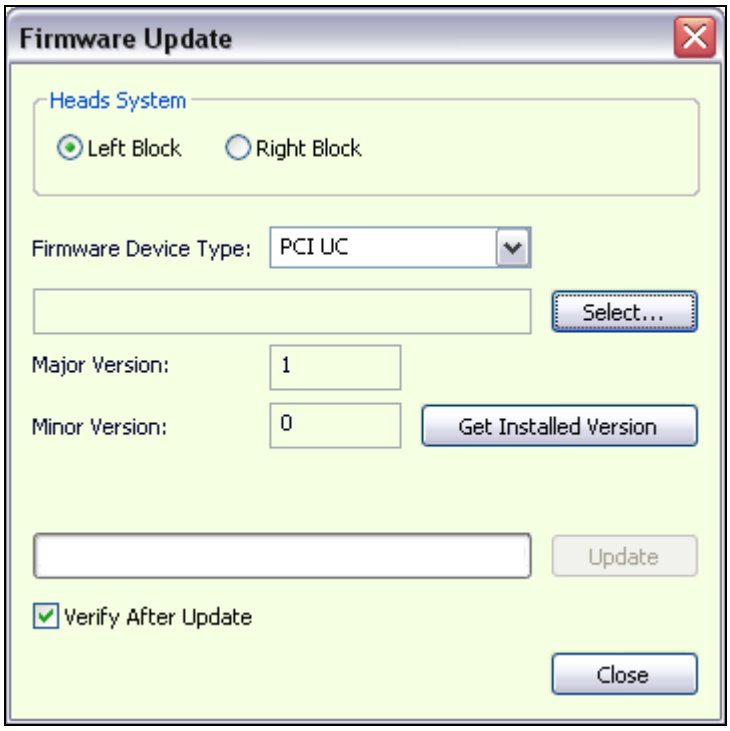
The Mechanical Heads Y Calibration dialog box as shown above, is for the use of Matan's engineer only.

Media Position Calibration


Media Position Calibration
* Before proceeding with the following steps, make sure the Left/Right settings for Slow speed is calibrated.
Media Sensor to Head 0 (Left)
1. Measure the installed media.
Measure Dialog...
2. Click the Test button to print the test illustration.
3. Set the distance between the edge of the media and the vertical line. The distance should be 50 mm from the media's edge.
50 mm Line Offset (+-):
0
Millimeter
4. Repeat steps 2 and 3, until the line position is exactly 50 mm from the media edge.
Print Table to Media
1. Measure the installed media.
Measure Dialog...
2. Measure the distance between the edge of the Print Table and the media. Compare the value with that displayed in the Media Settings dialog and adjust the Media Offset accordingly.
Media Offset (+-):
0
Centimeter
3. Repeat steps 1 and 2, until the value in the Media Settings dialog is the same as your measurment.
Save
Cancel

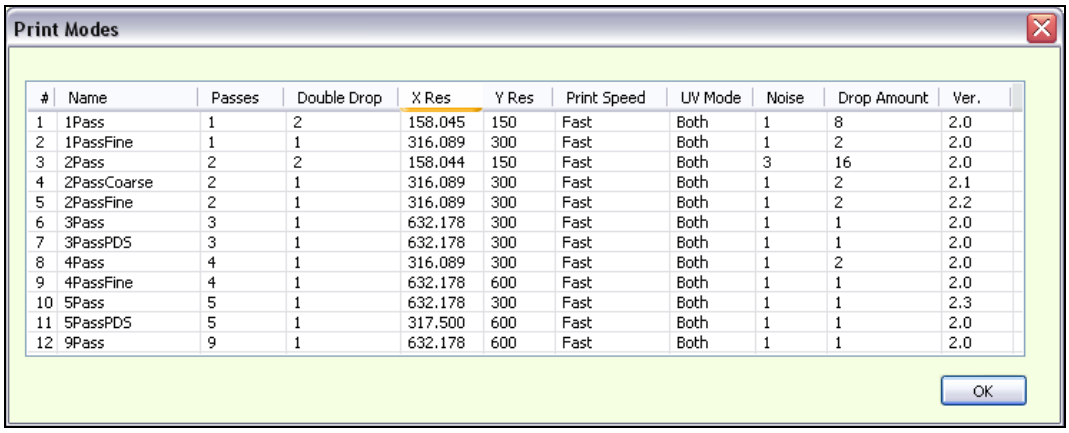
The Media Position Calibration dialog box as shown above, is for the use of Matan's engineer only.

BCC/PCI Firmware Update



The Firmware Update dialog box as shown above, is for the use of Matan's engineer only.

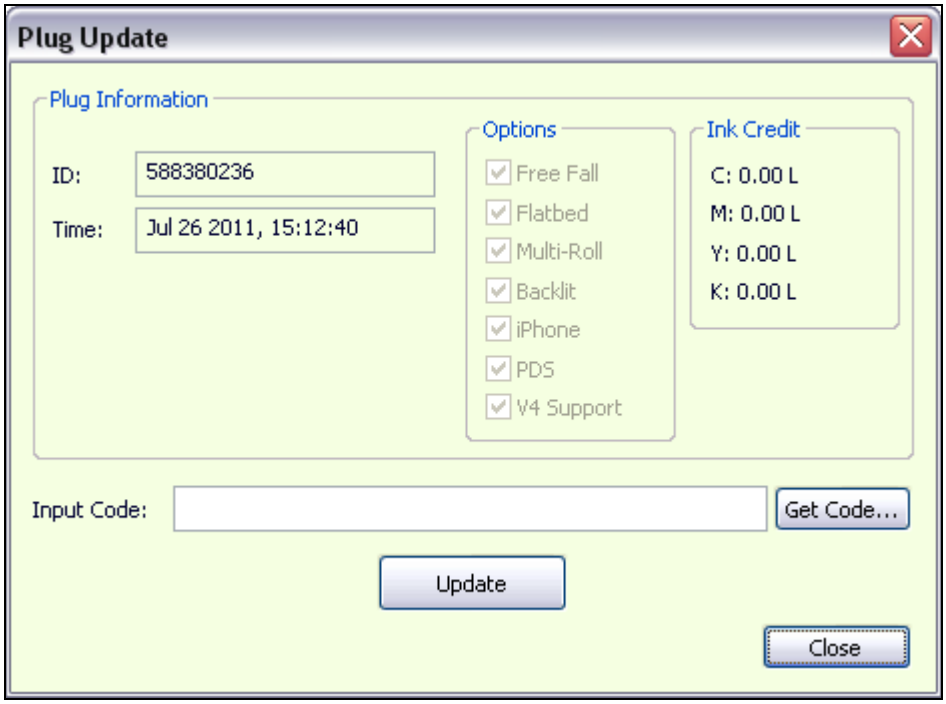
Print Modes



#	Name	Passes	Double Drop	X Res	Y Res	Print Speed	UV Mode	Noise	Drop Amount	Ver.
1	1Pass	1	2	158.045	150	Fast	Both	1	8	2.0
2	1PassFine	1	1	316.089	300	Fast	Both	1	2	2.0
3	2Pass	2	2	158.044	150	Fast	Both	3	16	2.0
4	2PassCoarse	2	1	316.089	300	Fast	Both	1	2	2.1
5	2PassFine	2	1	316.089	300	Fast	Both	1	2	2.2
6	3Pass	3	1	632.178	300	Fast	Both	1	1	2.0
7	3PassPDS	3	1	632.178	300	Fast	Both	1	1	2.0
8	4Pass	4	1	316.089	300	Fast	Both	1	2	2.0
9	4PassFine	4	1	632.178	600	Fast	Both	1	1	2.0
10	5Pass	5	1	632.178	300	Fast	Both	1	1	2.3
11	5PassPDS	5	1	317.500	600	Fast	Both	1	1	2.0
12	9Pass	9	1	632.178	600	Fast	Both	1	1	2.0

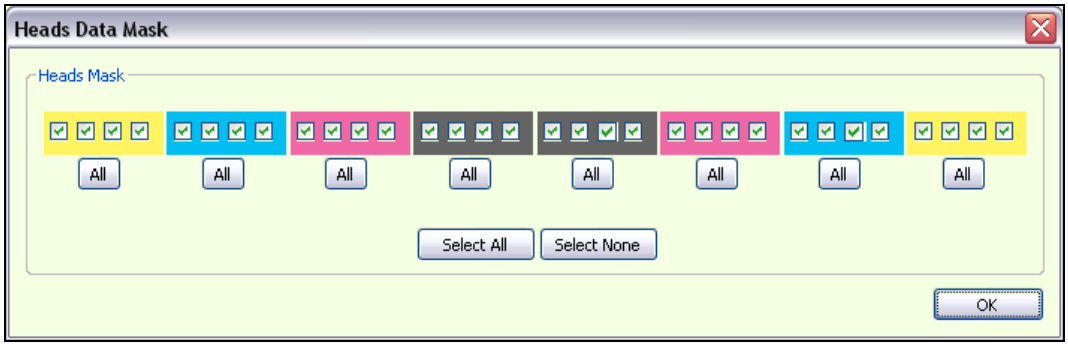
The PRINT MODES screen shows the settings for each PRINT MODE.

Plug Update



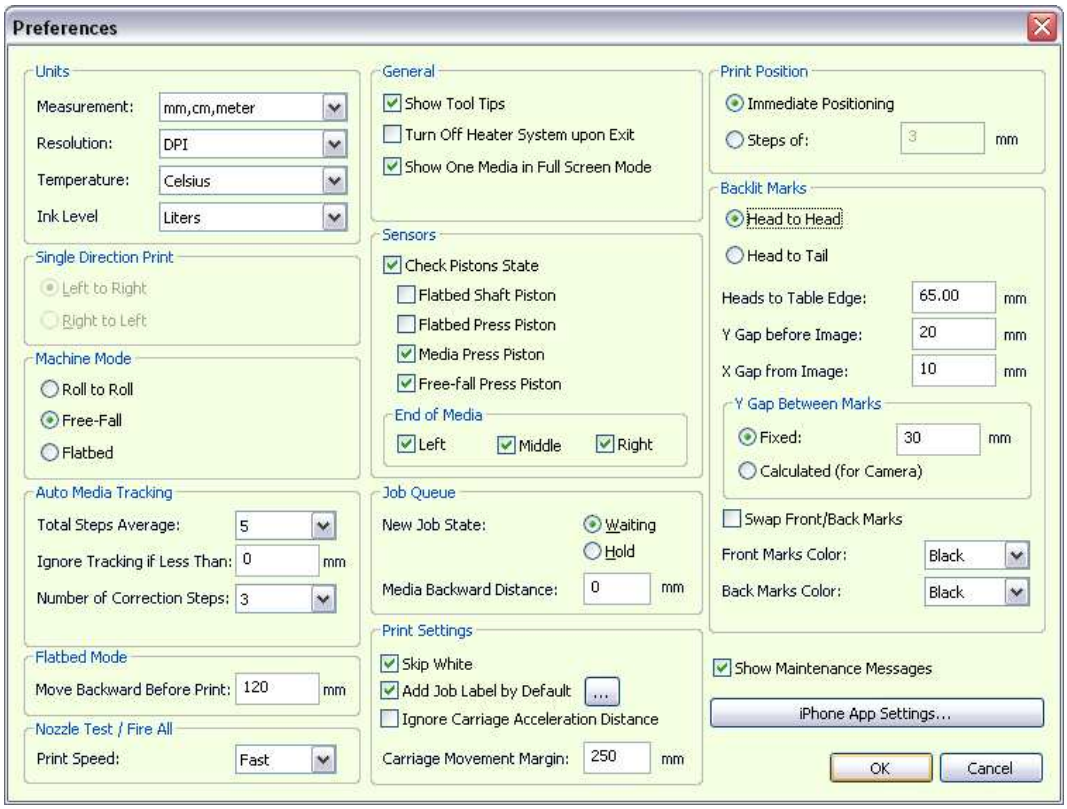
Menu Option	Function or description
Plug Information: ID: Time:	 ID: The ID number of the HASP key. The internal HASP key time and date.
Options	The options with which the printer can print. This is preset by Matan. Whenever these options have to be changed, Matan will send you a new Plug Input Code, by email.
Ink Credit	Not implemented.
Input Code	Code emailed from Matan.
Import/get Code	Browse for the Input Code's location.
Update	Updates the HASP dongle with the new data.

Heads Data Masking



Menu Option	Function or description
Heads Mask	**All**: Enables/disables all four related Print Heads. **Select All**: Selects all Print Heads for masking. **Select None**: Deselects all Print Heads for masking.

Preferences



Menu Option	Function or description
Units	Various units of measure.
Single Direction Print	Printing direction – left to right only.
Machine Mode	The three printing modes: Roll-to-Roll Flatbed
Auto Media Tracking	Sets the parameters for the AMT feature. This feature adjusts the printing according to the media's skew. The default is OFF.
Flatbed Mode	Backward before Print Size Reverse before printing
Nozzle Test/Fire All	Set the Carriage printing speed for Nozzle Test and Fire All.
General	General options to choose from.
Sensors	Check Pistons state.
End of Media	Enable/disable End of Media sensors.
Job Queue	**New Job State**: The status of a newly imported job – Hold/Waiting. **Media Backward Distance**: The distance the media will reverse before a new job prints. Max 250 mm. (Only when printing a queue.)

	Skip White: When checked, and if there is a white section in the file (without any data at all), the Carriage rests and the media will advance until it reaches the point where it arrives at the next pass containing data. It will then resume the printing from that point. **Add Job Label by default**: If checked, the job's label with user-set options, will be printed at the end of each file. If it is not checked, no label will be printed. **Carriage Movement Margin**: This is the distance that the Carriage will travel on the X axis before and after each pass. The distance can be adjusted on-the-fly. When printing on media that tend to heat during the printing process, this margin gives it more time to cool down before the next pass.
Print Position	**Immediate Positioning**: Any change to the image's position will be made on-the-fly. **Steps off**: This option is currently disabled.
Backlit Marks	**Various backlit parameters (see Printing Modes > Backlit Printing** **"**Backlit Printing," page 139**).**
iPhone App Settings	Enables/disables iPhone Client System.
Maintenance Messages	Displays maintenance messages.

9 The RIP Procedures

This chapter gives an overview of the **Barak HS** workflow as well as the RIP process using the Caldera application.

Caldera's full documentation is provided in PDF format on the Caldera Installation CD.

Barak's Workflow

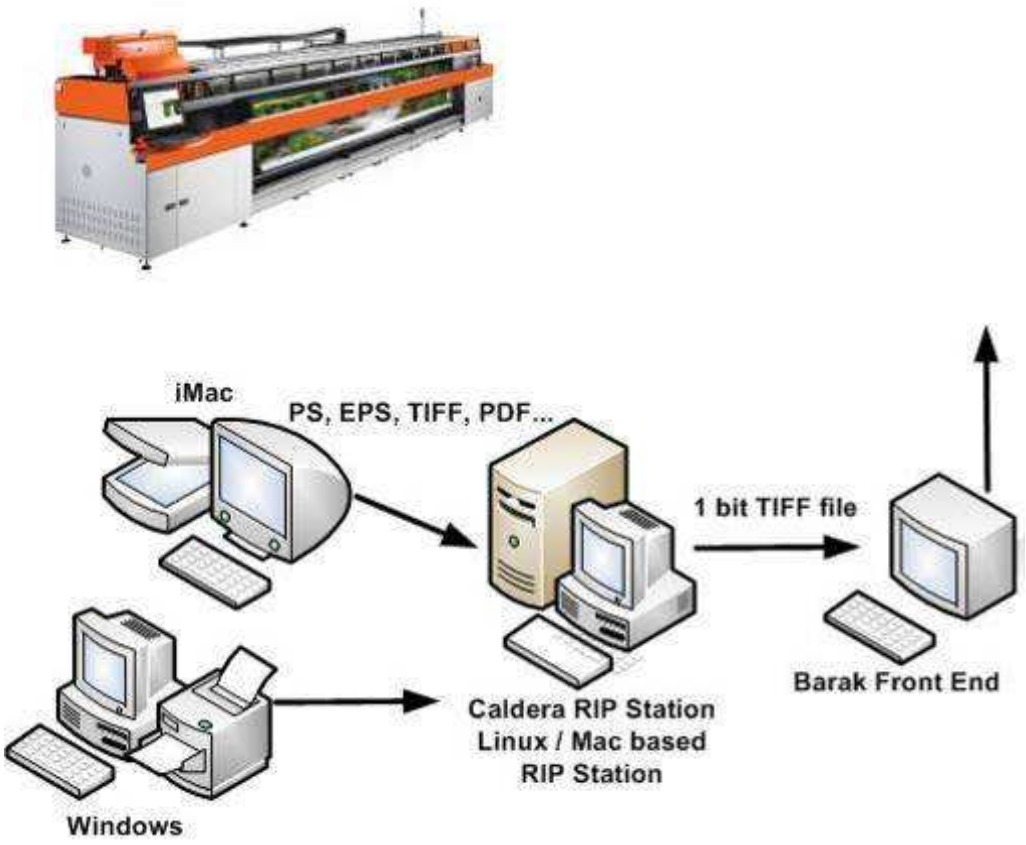
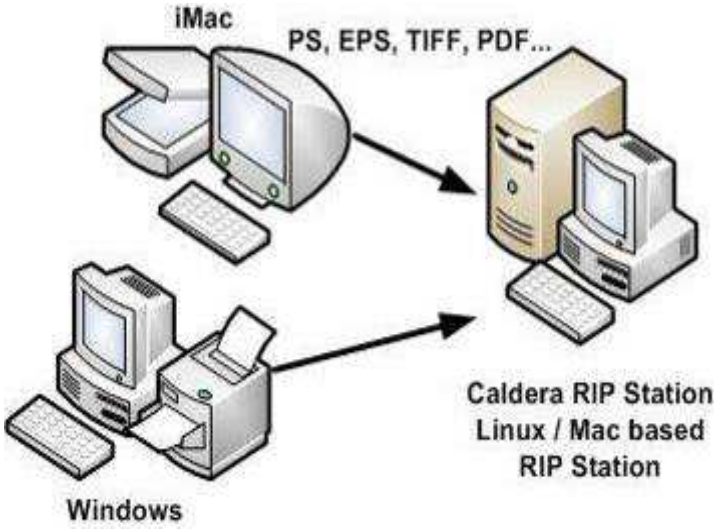


Figure 30: The Barak HS Workflow

Barak's workflow starts on a Mac / PC graphic application and using Caldera's GrandRIP+, converts the file.

The RIP procedure converts the input file into a 1-bit tiff file, which the Barak workstation manipulates and prints.

File Preparation



Caldera accepts most of the standard graphic formats such as: PS, EPS, PDF, TIFF, etc.

Caldera RIP

The Caldera application converts the graphic files to a Barak Format File which comprises a folder with six files (.mjob):

- Four 1-bit tiff files (xxx_c.tif, xxx_m.tif etc.)
- A preview file
- A Job Ticket file (XML format)

The Barak Front End

Barak's Front End manages the printing options and:

- Loads files onto the system.
- Sets the margins and location on the media.
- Sets step and repeat.
- Sets the UV Lamps' strength and other printing parameters.

File Manipulation Options

The following table shows the File Manipulation options.

Manipulation	RIP Application	Barak
Distort	✓	×
Scale	✓	✓*
Rotate 180º, Mirror	✓	✓
Step, Copies	×	✓
Tiling, Nesting	✓	×
Color Management	✓	×

*Depending on resolution.

Printing Modes and Maximum File Size

The following table shows the various Printing Modes with their corresponding File Size.

The maximum file size per separation is 4 GB.

Printing Modes and Maximum File Size

The following table shows the various Printing Modes with their corresponding File Size.

The maximum file size per separation is 4 GB.

Mode	Max. length (m) @ 1.6 m	Max. length (m) @ 3 m	Max. length (m) @ 5 m	Print Area (m^2)
9Pass	35	18	11	57
5PassPDS	70	37	22	110
5Pass	70	37	22	115
4PassFine	35	18	11	57
4Pass	144	76	46	228
3Pass	72	38	23	115
2PassFine	144	76	46	228
2PassCoarse	144	76	46	228
2Pass	575	306	184	920
1PassFine	144	76	46	228
1Pass	575	306	184	920

Printing Modes & Speeds – Barak HS

Mode	Base Resolution	H Resolution	V Resolution	Speed m^2/hr Barak iQ 5 m	Speed m^2/hr Barak iQ 3 m
1Pass	150	158.75	150	353**	278**
1PassFine	300	317.5	300	353**	278**
2Pass	150	158.75	150	177**	139**
2PassFine*	300	317.5	300	170**	133**
2PassCoarse*	300	317.5	300	165**	130**
3Pass*	300	635	300	110	87
4Pass*	300	317.5	300	88	69
4PassFine	300	635	600	88	69
5Pass*	300	635	300	66	52
5PassPDS***	600	317.5	600	66	52
9Pass	600	635	600	38	30

*8 separations

** With a Sigma5 Motor

***Applicable only for Barak iQ

An Introduction to Caldera (V.8)

- Caldera is one of the top leading wide format RIP software producers.
- Caldera is based on a user-friendly graphic interface with unique drag-and-drop options.
- Caldera works on both Linux and Macintosh operating systems.
- The Caldera computer should be used only for the RIP software.

Quick Start for Caldera

After activating the Caldera computer, the Caldera GrandRIP+ application screen automatically appears.

The APPLICATION BAR gives you access to the application's tools and the IMAGE BAR normally contains the icon of each loaded image.

In both bars, the icons comprise two sections (as shown below).

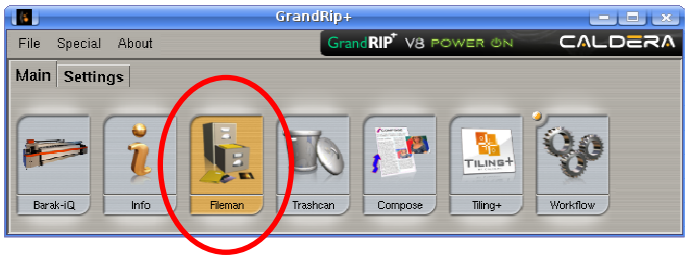
There are three ways to access the target (file or dialog box,) via the icon:

- Upper Section – double-click.
- Lower Section – click.
- Drag and Drop the icon.

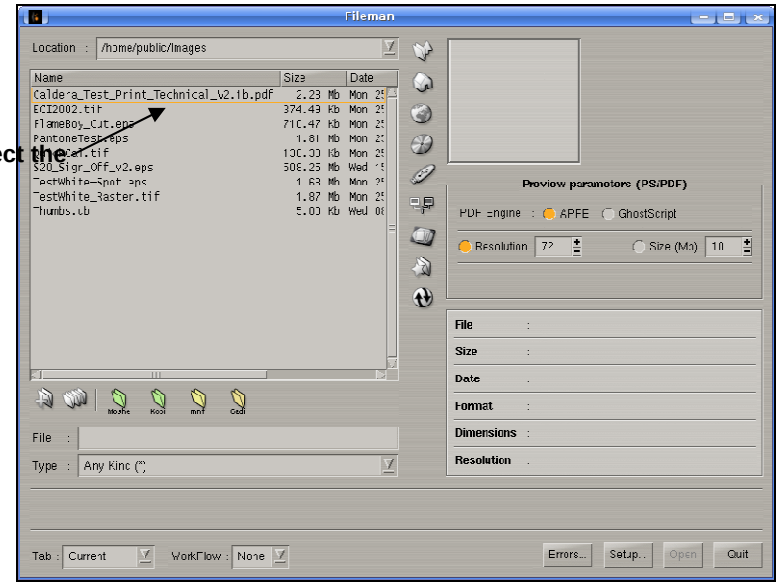
The File Manager

➤ To load the required file:

1. In the APPLICATION BAR, double-click FILEMAN,



2. Use the browser to locate the required file and double-click it.



Select the File

Click Open

3. Select the required file and click OPEN.

   A preview of the selected file appears in the IMAGES BAR (from where you send it to print).

The Preview Window

➢ **To display the required image:**

- In the IMAGES BAR, double-click the required image.

The image is displayed, as shown below.

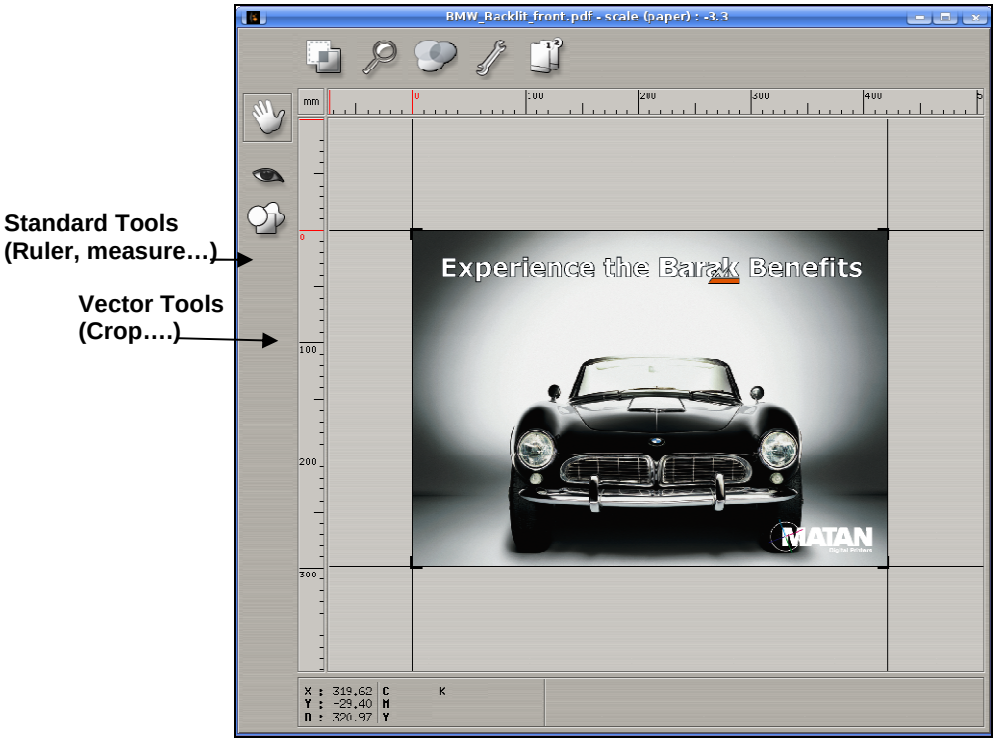


Figure 31: The Display window

The Main RIP Window

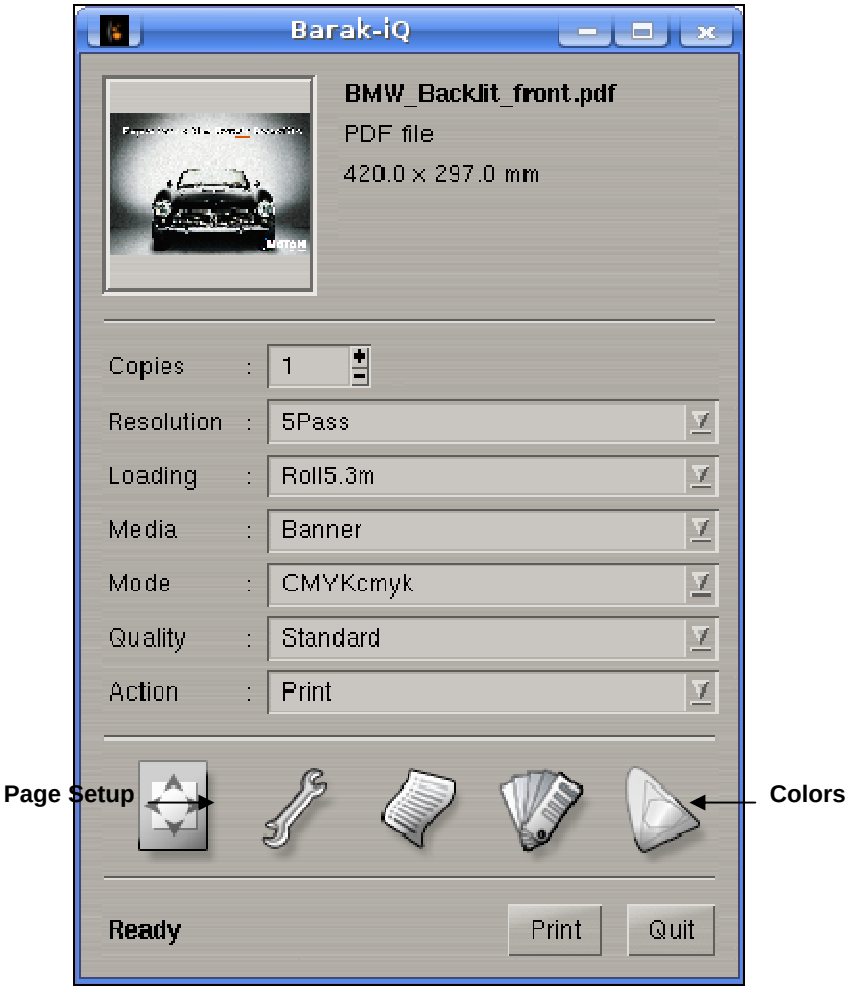


Figure 32: The Print window

➢ To print a file:

1. To print a file, access the PRINT MODULE by double-clicking BARAK in the APPLICATION BAR or by dragging and dropping the icon.
2. Drag and drop the required image from the IMAGES bar to the PRINT WINDOW.
3. Select the required resolution, the media's width, type and color mode (CMYK / CMYKcmyk).
4. Adjust the values in the PAGE SETUP dialog box before printing.
5. From the MAIN WINDOW, click PAGE SETUP to enable you to adjust the page.

The PAGE SETUP window appears, as shown in Figure 33.

The Page Setup Window

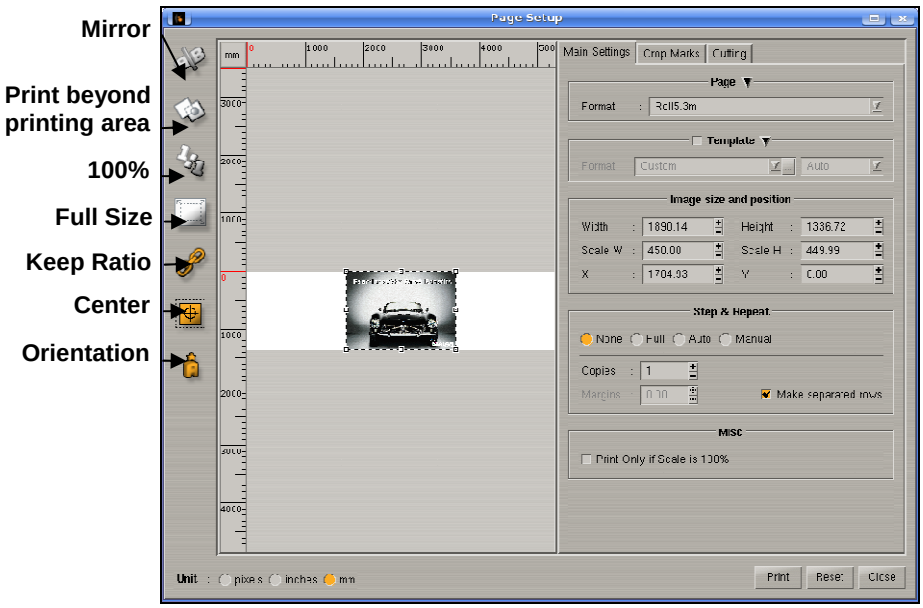


Figure 33: The Page Setup window

➤ To define the Page Setup:

1. Select the required options from the icons on the left side of the window, as well as the three tabs on the right, and click CLOSE.

   The application automatically sets the media's Color Management.

   If you want, you can print the file at this stage by clicking PRINT in the main RIP dialog box.

   You can adjust the color settings before printing.

2. From the main RIP dialog box, click COLORS.

   The COLORS dialog box appears.

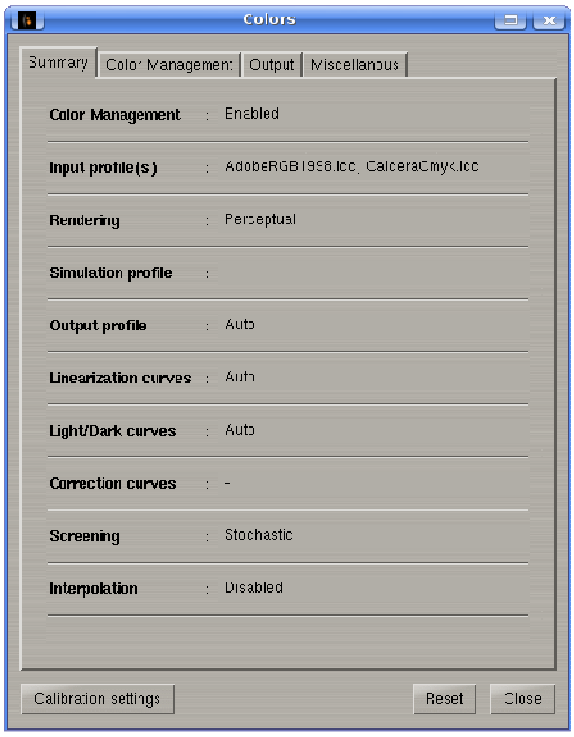


Figure 34: The Colors dialog box

3. Make the required changes to the Colors' settings in the different tabs and click CLOSE.
4. From the MAIN RIP dialog box, clicks PRINT.

Some Advanced Options

The Compose Window

The COMPOSE option enables you to compose a selection of different files for printing (nesting). For this, you should use the EDITION, CREATION and data ENTRY tools.

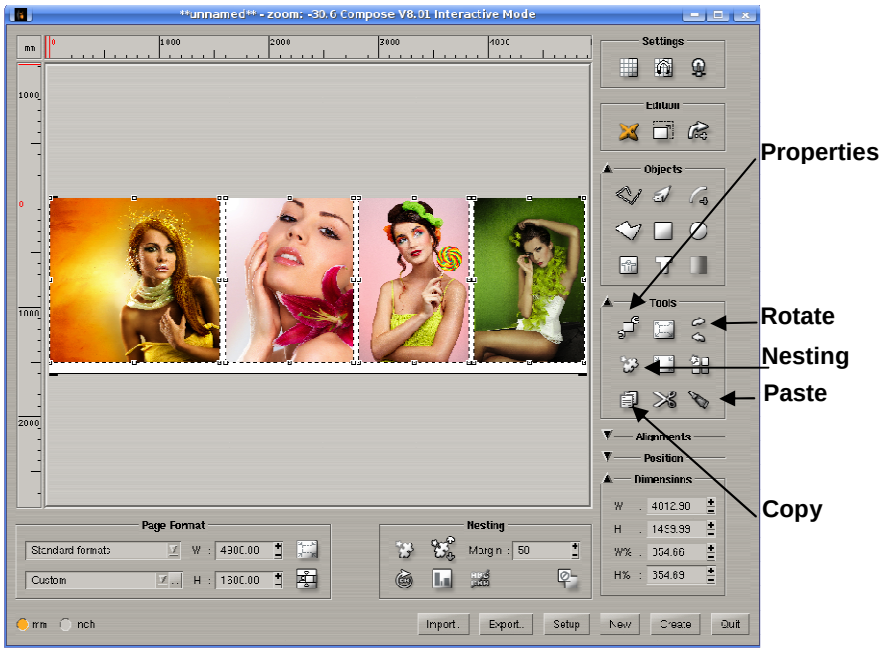


Figure 35: The Compose dialog box

The Tiling Window

The Tiling option enables you to create multi-tiled prints. This is ideal for applications where the posters have to be attached to advertisement panels, as well as exhibition stands etc.

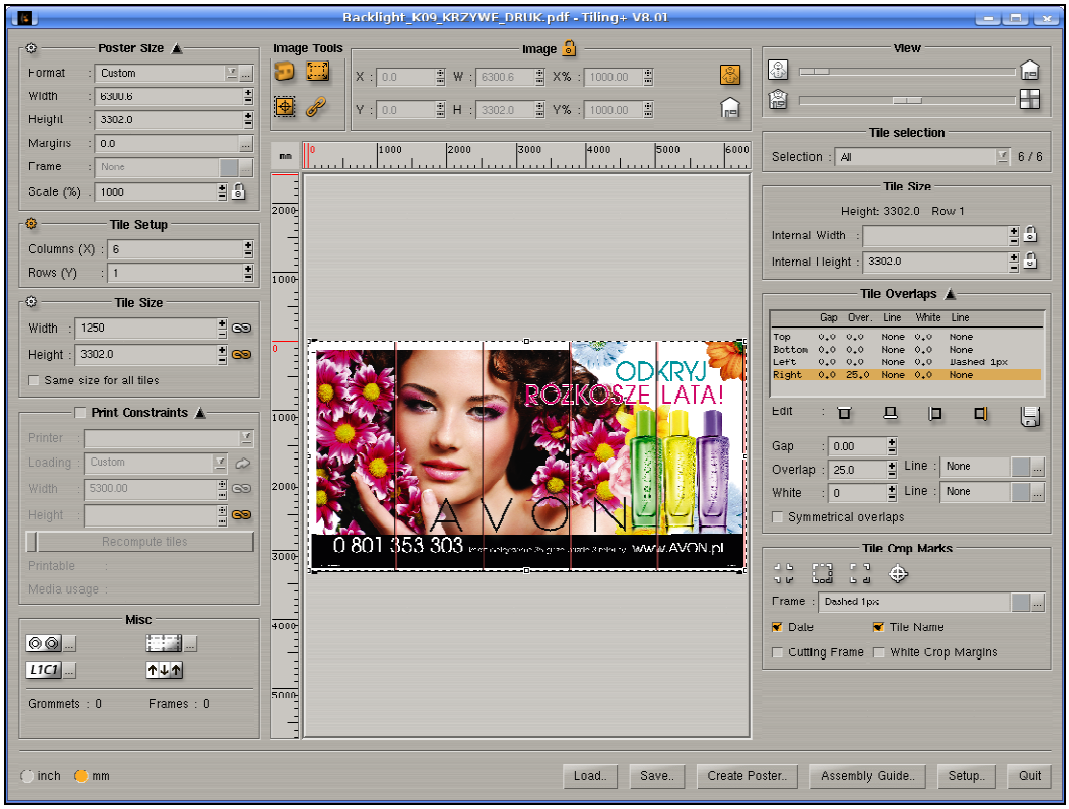


Figure 36: The Tiling dialog box

➤ To create multi-tiled prints:

1. Define the poster size, # of tiles and tile size (left side of window).
2. Define overlaps, white and crop marks (right side of window).
3. Drag the file from the IMAGE BAR.

   Usually, the client will send a file saved with a ratio of 1:10. If this is the case, you should select FULL PAGE or 1000%.
4. Create TILES.

10 Loading & Unloading the Media

This chapter sets out the procedures for loading and unloading the media, according to the type of print option you require.

Types of Loading

- External
- Internal – Face Out
- Internal – Face In

Types of Collecting and Unloading

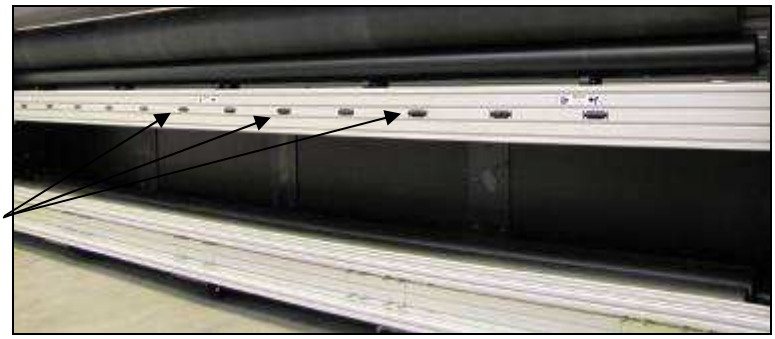
- Roll-to-Roll
- Freefall

Loading the Media

General

The Media Pressure Rollers

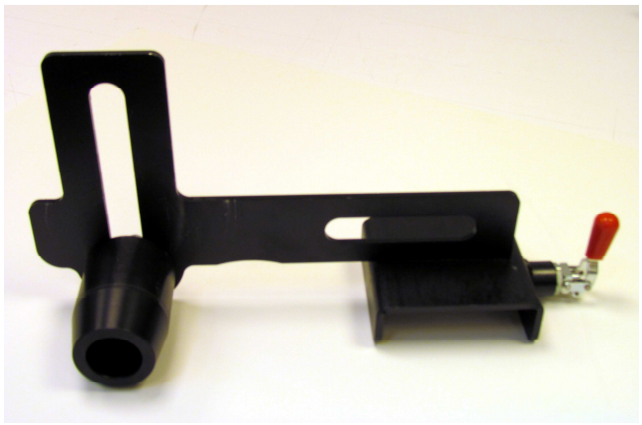
The printer has 12 MEDIA PRESSURE ROLLERS in the **Barak3** and 18 in the **Barak5**, installed at the front. At the rear of the printer, there are 12 or 18 MEDIA PRESSURE ROLLER INDICATORS, as shown below, that will help you correctly align the media when loading it—each indicator at the rear, corresponds to a roller at the front of the printer.



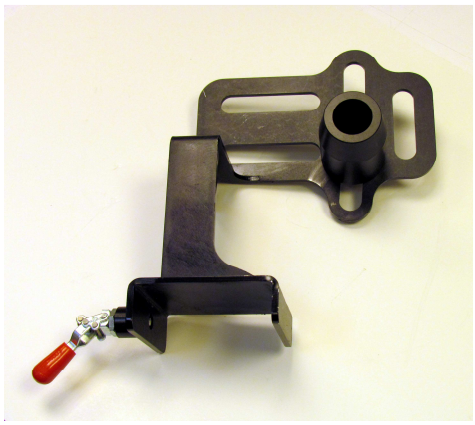
Three of the Media Pressure Roller Indicators

Adaptive Media Control

The Adaptive Media Controllers help to ensure an even flow of the media.



Adaptive Media Feeder



Adaptive Media Collector

Figure 37: Adaptive Media Controllers

Adaptive Media Feeder

When using the INTERNAL MEDIA FEEDER MODE, a set of two ADAPTIVE MEDIA FEEDERS (AMF), as shown below, is provided and should be installed at the rear of the printer,. The FEEDERS should be secured to the printer next to the ends of the new media, as shown below.

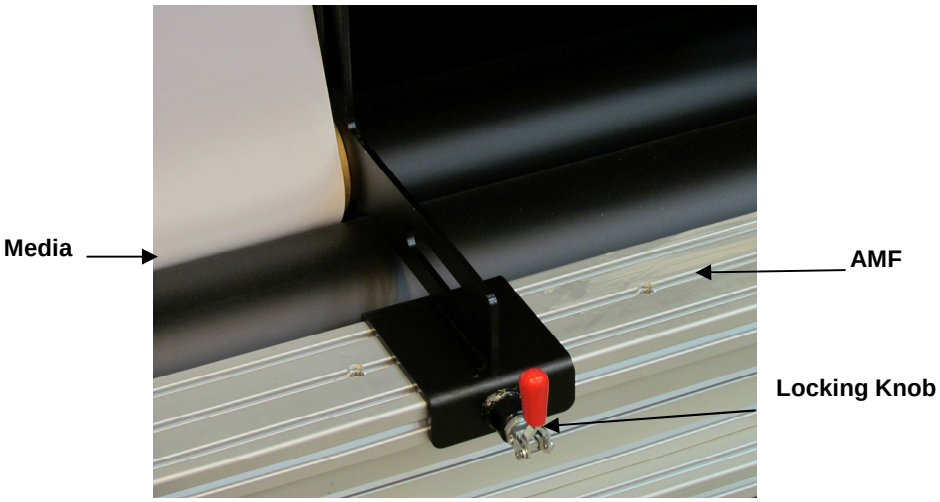


Figure 38: An assembled Adaptive Media Feeder

Adaptive Media Collector

A set of two ADAPTIVE MEDIA COLLECTORS (AMC) as shown below, is provided and should be installed at the front of the printer. The COLLECTORS should be secured to the printer next to the ends of the printed media, as shown below.

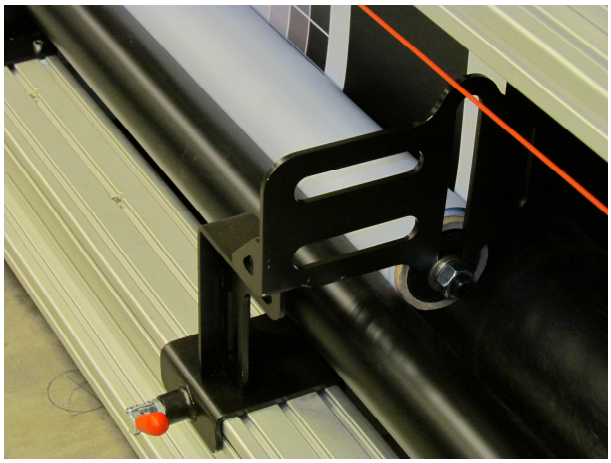


Figure 39: An assembled Adaptive Media Collector

Attaching the Adaptive Media Controllers and a New Media Roll to the Printer

➤ **To attach the Adaptive Media Controllers to the Printer:**

1. At the rear of the printer, place a NEW MEDIA Roll at the required location.
2. While inserting the Feeder's Cone into the Media's Core, align the Feeder's Plate with the edge of the Media, as shown in Figure 38, page 90.
3. Secure the FEEDERS to the printer, using the locking handles.
4. At the front of the printer, place an empty Core at the required location.
5. While inserting the Collector's Cone into the empty Core, align the Collector's Plate with the edge of the Core, as shown in Figure 39.

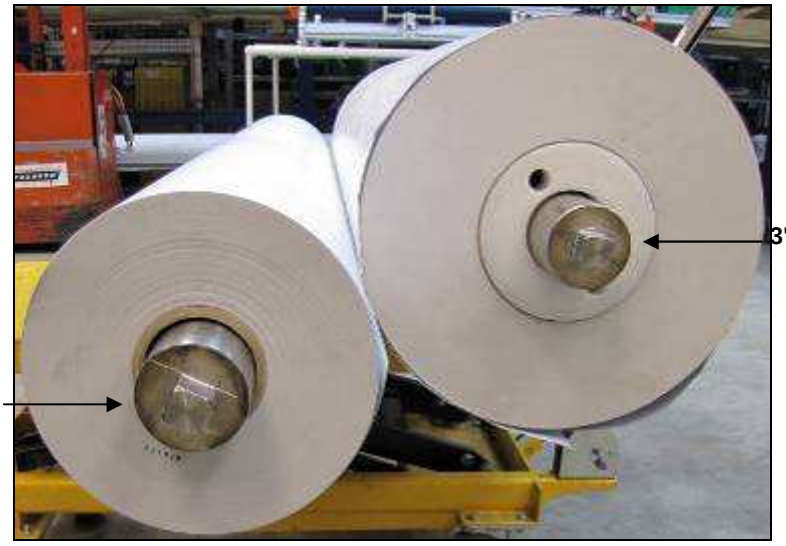
External Loading

With External Loading, the new media is attached to a pair of EXTERNAL CORE HOLDER, as shown below.

Figure 40: An External Core Holder

Your printer is usually supplied with three pairs of EXTERNAL CORE HOLDERS. (Barak5 has 3 pairs, Barak3 has 2 pairs.)

The media is supplied either with a 3" or 6" core. Matan have supplied 3" – 6" adapters, so that both the 3" and 6" core will fit on the EXTERNAL CORE HOLDER, as shown below.



➢ To attach the Media Core to the External Core Adapter:

- Insert the steel core into the MEDIA CORE and lock it in place using a CORE FASTENER at each end, as shown below.

Unlocked

Locked

➢ To load new media externally

1. Lower the PRESS ROLLER and raise the SHAFT by pressing the buttons on the rear left side of the printer, above the INK TANKS.
2. Place the new media on the EXTERNAL CORE HOLDERS.
3. Feed the media between the 'F' motor and the REAR ROLLER.
4. Feed it behind the PRESS ROLLER and then between the PRESS ROLLER and the SHAFT.
5. Release enough media to allow it to drop onto the MEDIA ROLL and align the edges of the media.

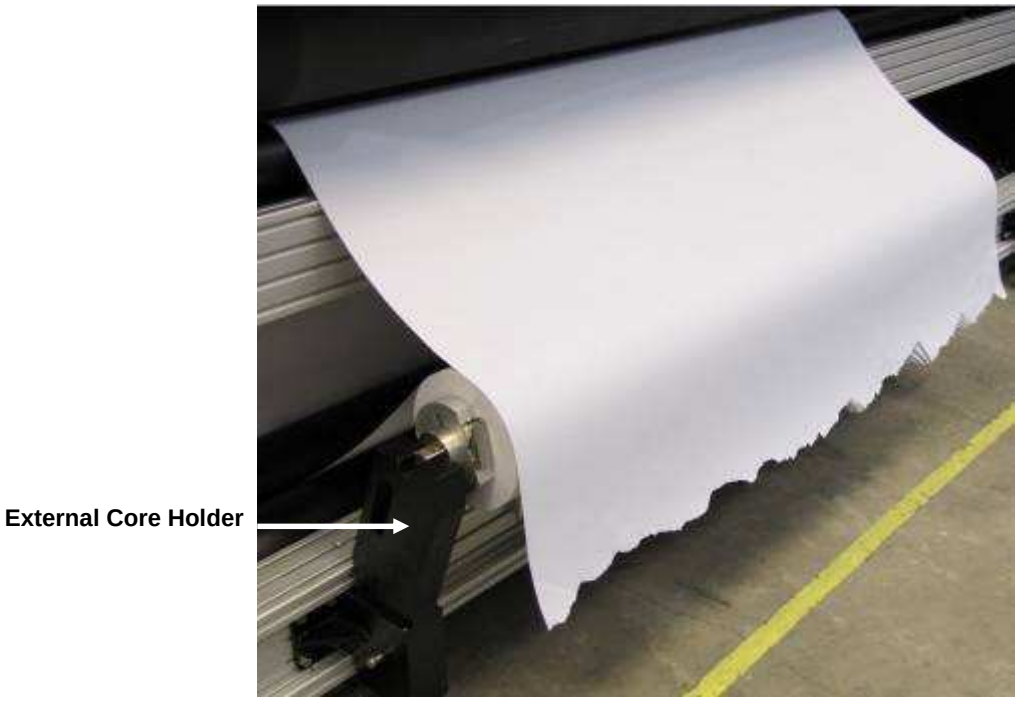


Figure 41: Aligning media edges with the roll

6. Lower the SHAFT by pressing its button.
7. Raise the PRESS ROLLER by pressing its button.
8. Bring the media up and between the CARRIAGE BEAM and the PRESS ROLLER, as shown below.

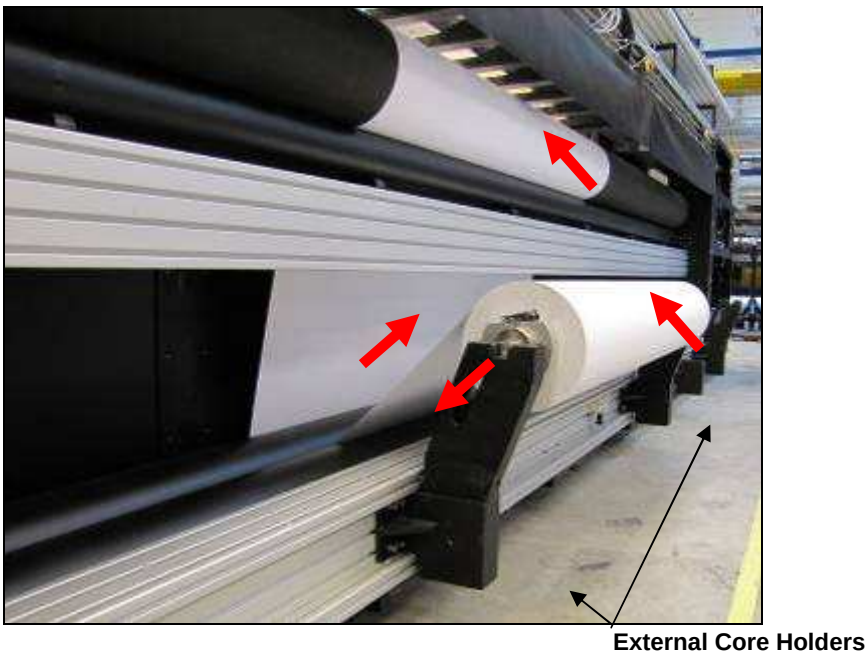


Figure 42: Loading Media for External Roll-to-Roll printing

9. From the front of the printer, pull the media (and if necessary, advance it using the software,) until you can feed it between the 'T' ROLLER and the MEDIA PRESSURE ROLLERS, as shown in Figure 46, page 97.

Figure 43: Feeding media between the T Roller and Pressure Rollers

Internal Loading – Face-out

➢ **To load the new media internally – Face-out:**

1. Place the new media on the 'F' ROLLER and the REAR ROLLER.

   If necessary, rewind the media so that it is taut on the roll.
2. Install the LIMITERS.
3. Feed it behind the PRESS ROLLER and then between the PRESS ROLLER and the SHAFT.
4. Release enough media to allow it to drop onto the MEDIA ROLL and align the edges of the media, as shown below.

Figure 44: Internal Loading – Face Out

5. Lower the SHAFT by pressing its button.
6. Raise the PRESS ROLLER by pressing its button.
7. Bring the media up and between the CARRIAGE BEAM and the PRESS ROLLER, as shown below.

Figure 45: Loading Media Internally – Face Out

8. From the front of the printer, pull the media (and if necessary, advance it using the software, until you can feed it between the 'T' ROLLER and the MEDIA PRESSURE ROLLERS.

Figure 46: Feeding media between T Roller and Pressure Rollers

Internal Loading – Face-in

➢ **To load the new media internally – Face-in:**

1. Place the new media on the 'F' ROLLER and the REAR ROLLER.

   If necessary, rewind the media so that it is taut on the roll.
2. Install the LIMITERS.
3. Feed it behind the PRESS ROLLER and then between the PRESS ROLLER and the SHAFT.
4. Release enough media to allow it to drop onto the MEDIA ROLL and align the edges of the media, as shown below.

Figure 47: Internal Loading – Face In

5. Lower the SHAFT by pressing its button.
6. Raise the PRESS ROLLER by pressing its button.
7. Bring the media up and between the CARRIAGE BEAM and the PRESS ROLLER, as shown below.

Figure 48: Loading Media Internally – Face In

8. From the front of the printer, pull the media (and if necessary, advance it using the software,) until you can feed it between the 'T' ROLLER and the MEDIA PRESSURE ROLLERS, as shown below.

Collecting and Unloading the Media

Roll-to-Roll

In Roll-to-Roll printing you have to prepare the configuration before you print.

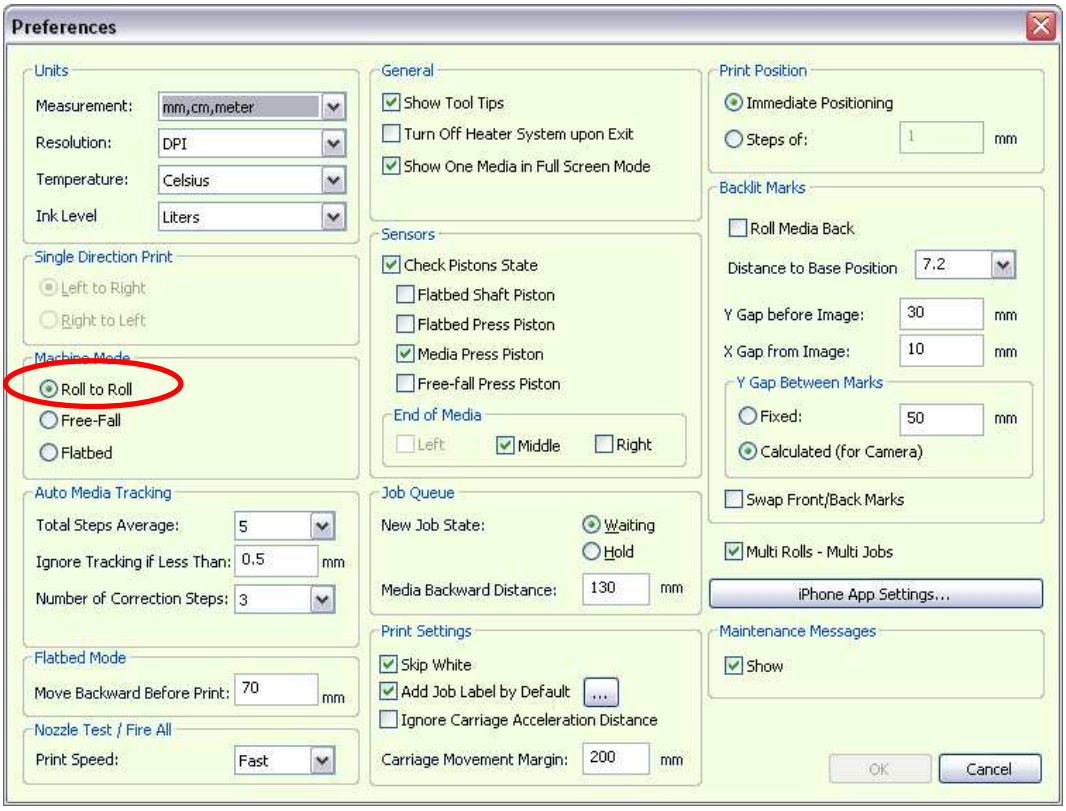
The media is collected onto the COLLECTOR SHAFT 'Z' and, after the printing process has been completed, it has to be unloaded from the COLLECTOR SHAFT 'Z'.

Configuring the Software

➤ **To Configure the software:**

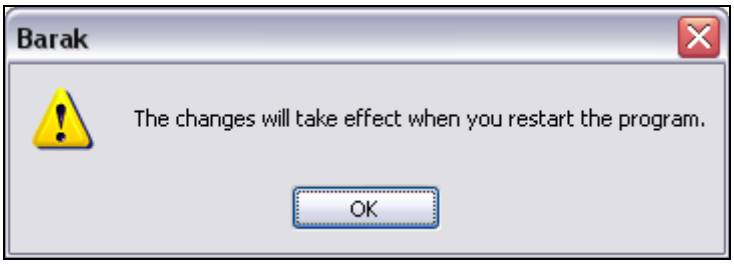
1. From the MAIN SCREEN, select TOOLS and from the drop-down menu, choose PREFERENCES, as shown below.

The PREFERENCES dialog box appears, as shown below.



2. In the MACHINE MODE group box, check the ROLL-TO-ROLL option and click OK.

   The following window appears.



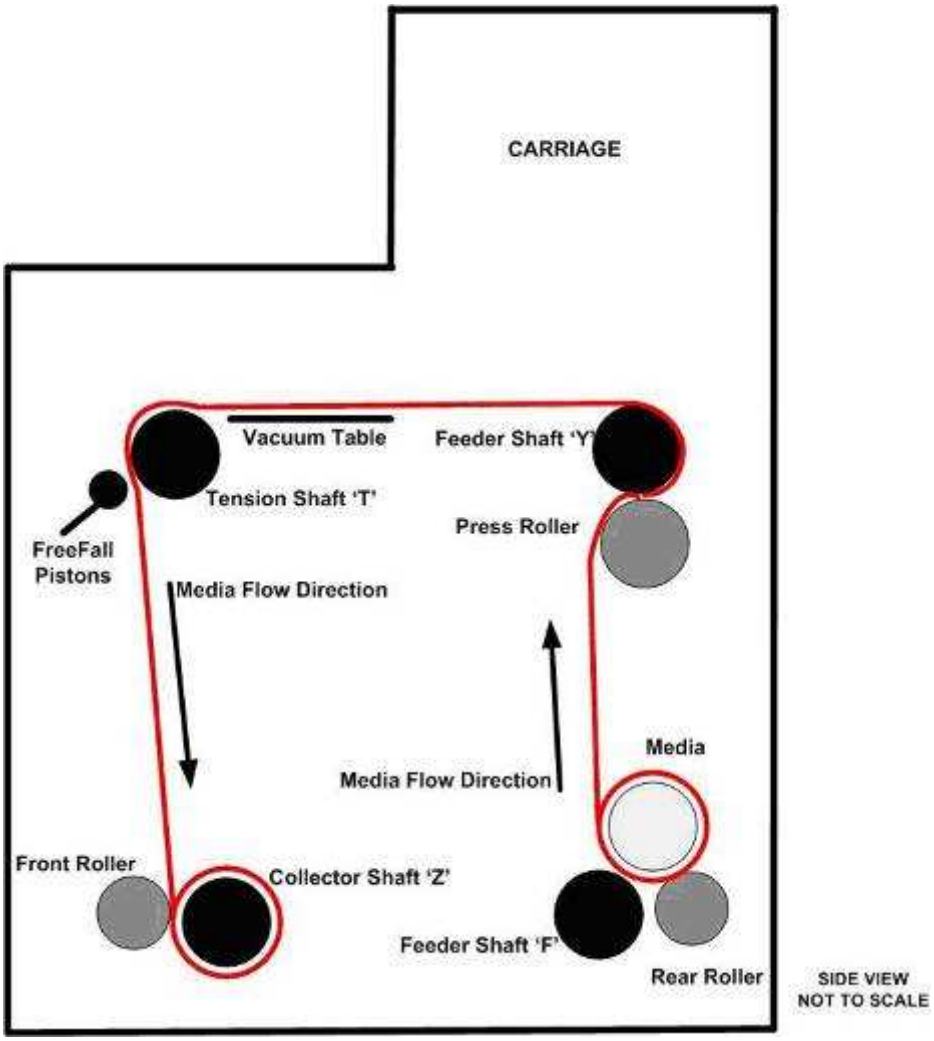
3. Click OK and restart the program.

➢ To start collecting the media:

1. Load the media as described in any of the above methods. (external, internal – face-out or face-in).
2. Using the software, advance the media until its leading edge reached the COLLECTOR SHAFT 'Z'.
3. Tape the leading edge to the COLLECTOR SHAFT 'Z'.
4. From the CONTROL PANEL, set the media's PRINT TENSION POWER at a low value.
5. Using the software, advance the media at least one revolution of the COLLECTOR SHAFT 'Z'.

6. Using the software, apply tension, so that the COLLECTOR SHAFT 'Z' begins to revolve.
7. As soon as the COLLECTOR SHAFT 'Z' has taken up the media's slack, increase the PRINT TENSION POWER to a higher value, as required.

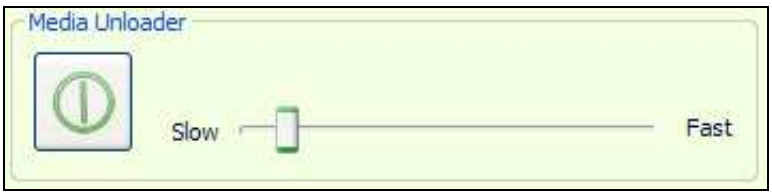
The media is loaded from the rear of the printer as shown below.



The printer is now ready start the job.

➢ To unload the Media:

- To revolve the COLLECTOR SHAFT 'Z' in the opposite direction, use the MEDIA UNLOADER on the CONTROL PANEL, shown below. Control the speed by moving the slider, shown below.



In FREE FALL printing you have to prepare the configuration before you print.

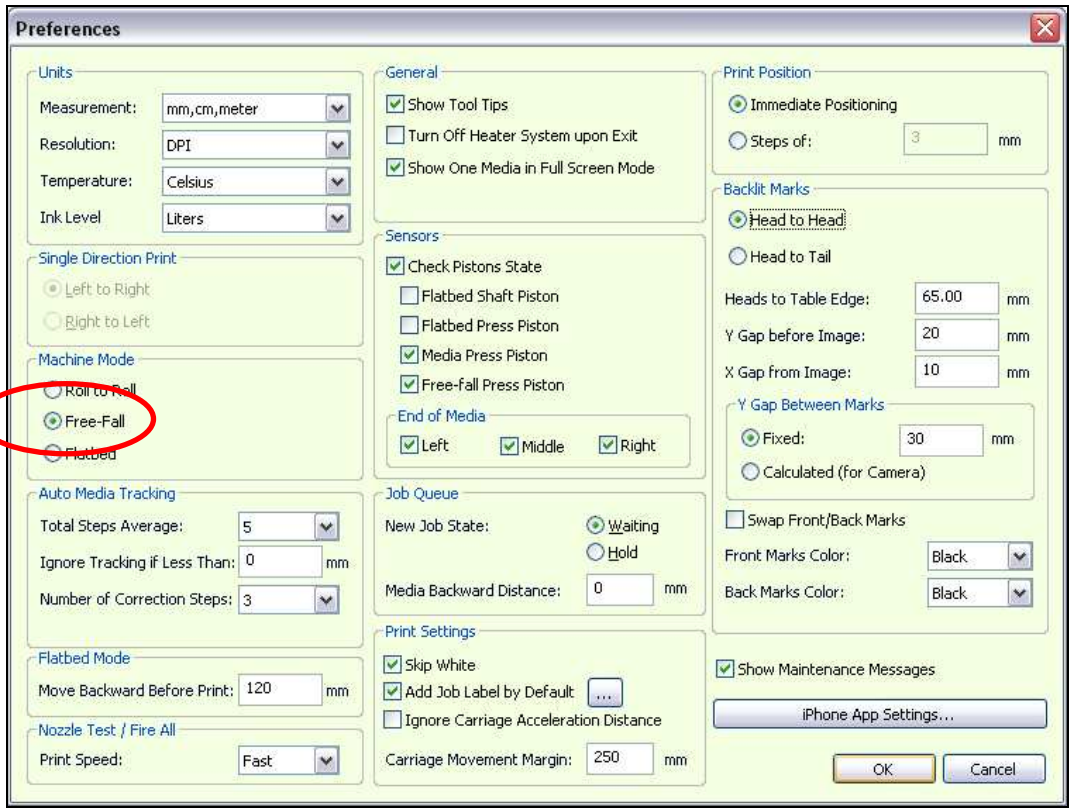
The media is collected onto an external core, or simply falls freely.

Configuring the Software

➢ **To configure the software:**

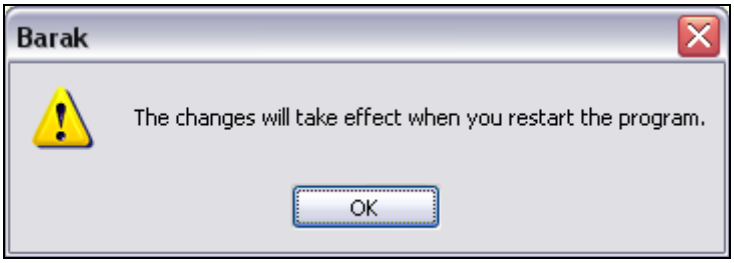
1. From the MAIN SCREEN, select TOOLS and from the drop-down menu, choose PREFERENCES, as shown below.

The PREFERENCES dialog box appears, as shown below.



2. In the MACHINE mode group box, check the option and click OK.

The following window appears.



3. Click OK and restart the program.

Collecting the Media

➤ **To Collect the media:**

1. Load the media as described in any of the above methods. (external, internal – face-out or face-in).
2. Close the MEDIA PRESSURE ROLLERS.
3. Start printing.
4. When the printed media's leading edge has reached the external core, wind it onto the core or allow it to fall freely.

Figure 49: Media printed in Free-Fall mode

5. Place the core on top of the COLLECTOR SHAFT 'Z' and the FRONT ROLLER.

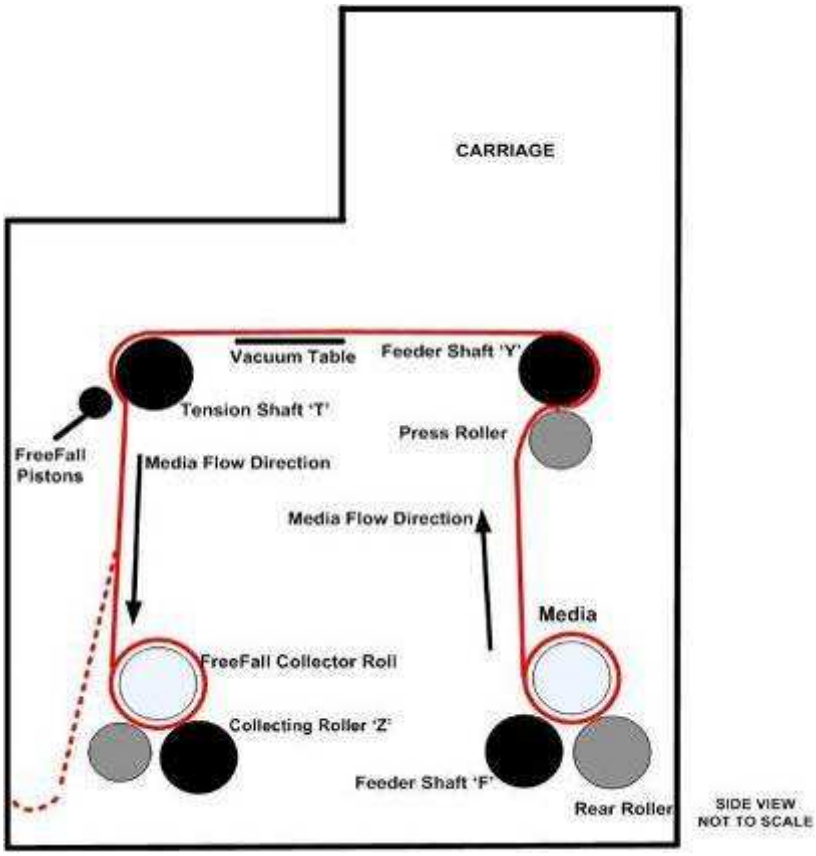


Figure 50: Path of the media for Printing

➢ To unload the Media:

- Cut the media at the end of the job and remove the external core from the printer.

If you have let the media fall onto the floor, cut each job separately from the printed media.

11 Preparing the Printer

The Media

The **Barak** printer will print on many types of media, such as:

- Banner
- Carpet
- Self adhesive
- Mesh
- Paper
- Rigid Media

For rigid media you have to prepare the FLATBED FEEDER and COLLECTOR TABLES.

Barak will print a maximum of three Media Rolls simultaneously.

For any of the media described above, you have to make sure that the Carriage is adjusted to the correct height, according to the Media's thickness.

The Ionizer

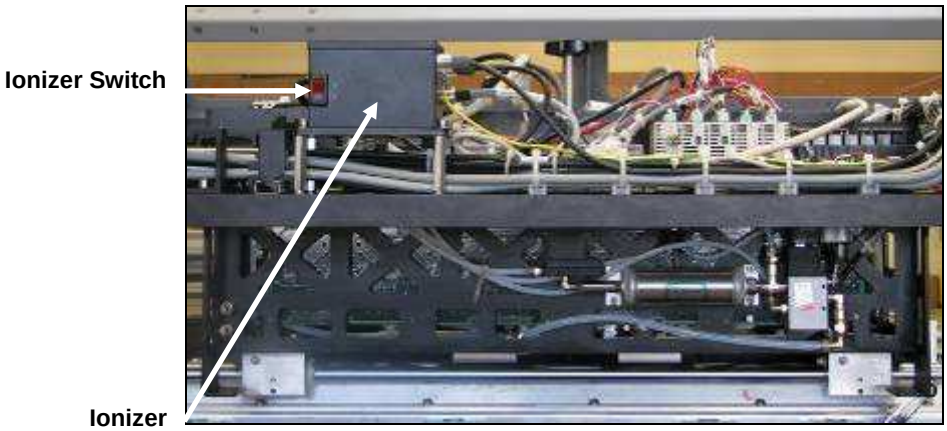


Figure 51: The Ionizer

The IONIZER – *an optional accessory* – shown in Figure 51, neutralizes the electrostatic charge that accumulates on the Media.

You should use the IONIZER when the atmosphere is damp or when you are using media that produces an electrostatic charge. It is manually activated by operating the IONIZER SWITCH, as shown above.

The IONIZER can be used either for flexible media such as banner, fabric, mesh, paper, vinyl, etc., or on rigid media such as foam board, forex and corrugated carton.

Docking the Flatbed Tables to the printer

Before loading the FLATBED media, you have to dock a FLATBED table at both the front and rear of the printer, as shown in the following two figures. Locking the tables to the printer stabilizes both the feeding and collecting of rigid media.

Figure 52: A Flatbed Printing Table – front of the printer

Figure 53: A Flatbed Printing Table – back of the printer

For each FLATBED DOCKING SET, two DOCKING BRACKETS are attached to the front of the printer and two DOCKING PINS are attached to the rear. Similarly, two DOCKING BRACKETS are attached to one side of the FLATBED TABLE and two DOCKING PINS are attached to the other side, as shown below.

Docking Pin attached to the Table

Docking Bracket attached to the Printer

Figure 54: A Front Docking Pin and Bracket

➤ To attach a Flatbed Table to the printer:

1. At the front of the printer and with the table's DOCKING PINS located nearest the printer, carefully insert the TABLE'S PINS into the printer's BRACKETS, until you hear a click from each of the brackets.
2. Check that the TABLE is securely attached to the printer.
3. At the rear of the printer and with the table's DOCKING BRACKETS located nearest the printer, carefully insert the TABLE'S BRACKETS into the printer's PINS, until you hear a click from each of the BRACKETS.

Rear Docking Pin

4. Check that the TABLE is securely attached to the printer.

➢ **To detach the Flatbed Table from the printer:**

1. At the front of the printer, pull down the spring-loaded knob on the two DOCKING BRACKETS and turn them so they remain in the open position.

2. Pull the TABLE away from the printer.
3. Turn the knobs on the BRACKETS so that they return to their original position.
4. At the rear of the printer, pull down the spring-loaded knob on the DOCKING BRACKETS (located on the TABLE) and turn them so they remain in the open position.
5. Pull the TABLE away from the printer.
6. Turn the knobs on the BRACKETS so that they return to their original position.

The Print Table

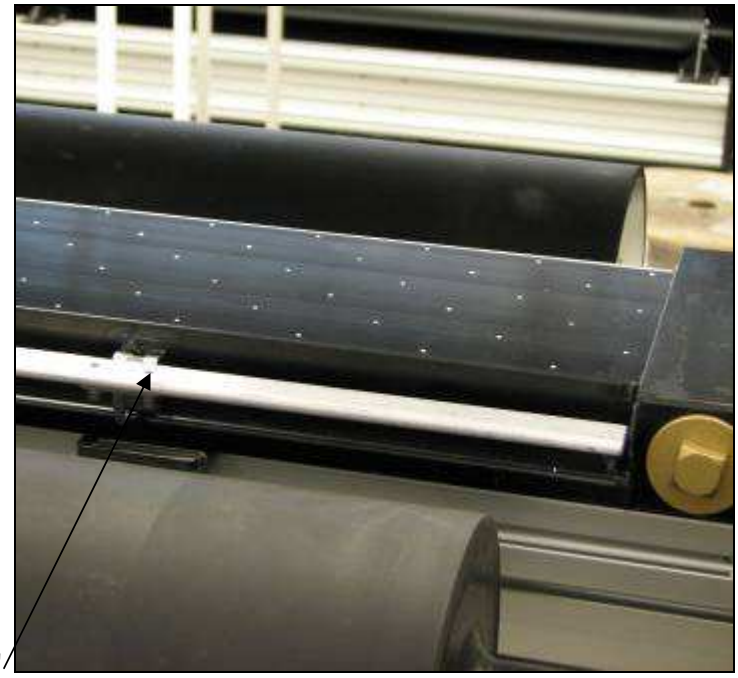


Figure 55: The Print Table (with Wings 'down')

When the media passes over the activated PRINT TABLE, the vacuum prevents wrinkles in the media.

The vacuum should not be activated when printing on Mesh Media. The WINGS should be up by activating the appropriate switch.

When using Mesh, the ABSORBENT PRINT MATERIAL should be placed on the table.

To avoid crashing the Print Heads into the Wings, make sure to adjust the Carriage height before you start any operation that requires Carriage movement (such as Init, media measuring, printing etc.).

Incorrect adjustment of the Print Table height, can cause damage to the Print Heads.

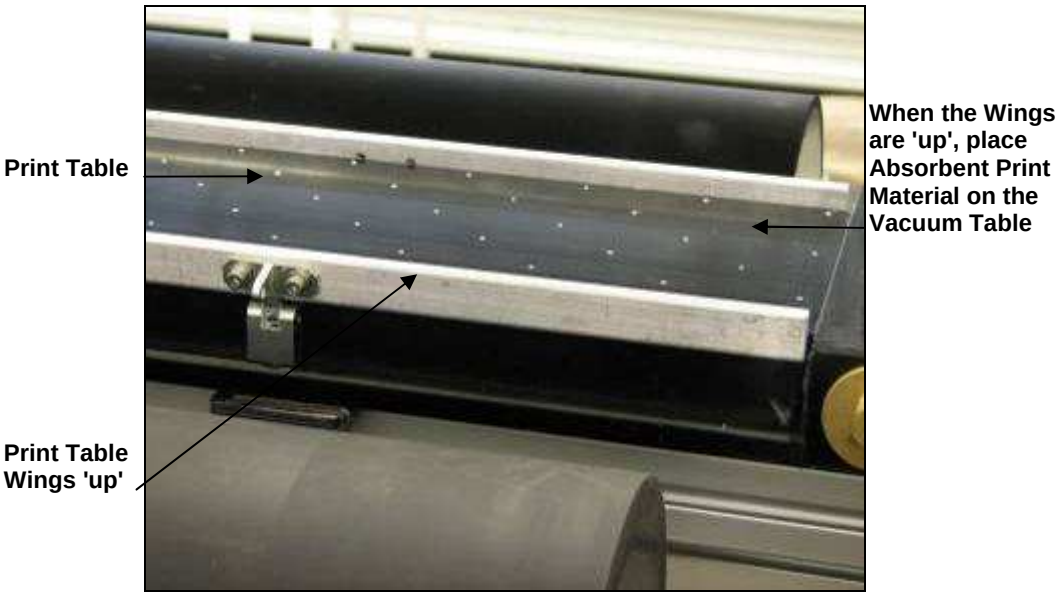


Figure 56: Print Table (with Wings 'up')

The level of vacuum applied to the media is regulated by the VACUUM REGULATOR, according to the media you use.

- Single or Multi Media printing
- Width of Media (the wider the media, the lower the vacuum).
- Weight of Media (the heavier the media, the lower the vacuum).
- Rigid Media (use low level of vacuum).
- When working with polyethylene (PE) and wrinkles appear, we recommend you to work with the wings up.

We recommend that you experiment until you find the optimal level.

The Print Table height can only be adjusted by an authorised Matan Technician.

Adjusting the Carriage Height

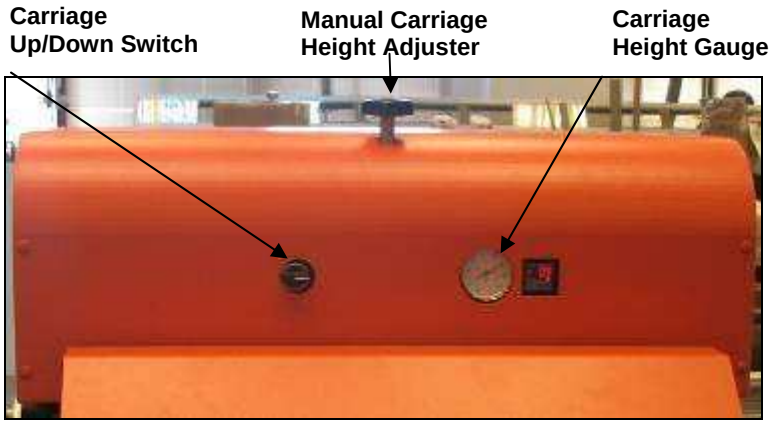


Figure 57: Carriage Height Gauge

The height of the CARRIAGE has to be adjusted according to the thickness of the media on which you are printing.

When the CARRIAGE HEIGHT GAUGE is set at '0' (zero), the carriage is 2 mm above the PRINT TABLE.

When printing on thick media, you should move the CARRIAGE higher so that the gauge will show more than -0-. The CARRIAGE should be at least 2 mm above the media to avoid a collision if wrinkles are formed.

You adjust the CARRIAGE height by using the CARRIAGE UP/DOWN SWITCH. Turn the switch ***counter clockwise*** to raise the carriage and ***clockwise*** to lower it. When you let go of the switch the CARRIAGE stops moving.

The CARRIAGE HEIGHT GAUGE shows the height of the CARRIAGE above the PRINT TABLE, plus 2 mm.

To manually adjust the CARRIAGE height, use the MANUAL CARRIAGE HEIGHT ADJUSTER.

The Purge Procedure

In order to open clogged nozzles, you flush a certain amount of ink through the PRINT HEADS, using air pressure. The ink is forced through the PRINT HEAD and drips into the INK TRAY. The purge's duration can be controlled, from the PREFERENCES dialog box (limited to 5 seconds).

You carry out this procedure from the PURGE group box in the CONTROL PANEL, as shown in Figure 58, page 111.

➢ To carry out a Purge:

1. Select the PRINT HEADS you want to purge (Figure 58, page 111).

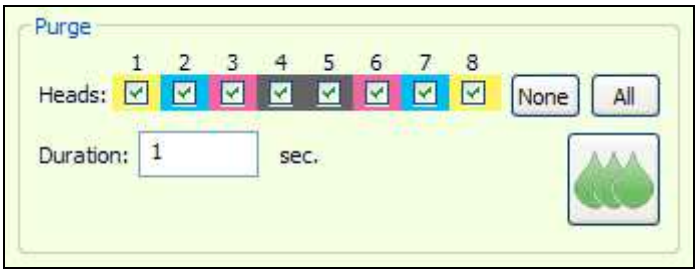


Figure 58: The Purge group box

2. In the DURATION field, enter the length of time you wish the purge to take. This time is limited to 5 seconds.
3. Click the PURGE icon.

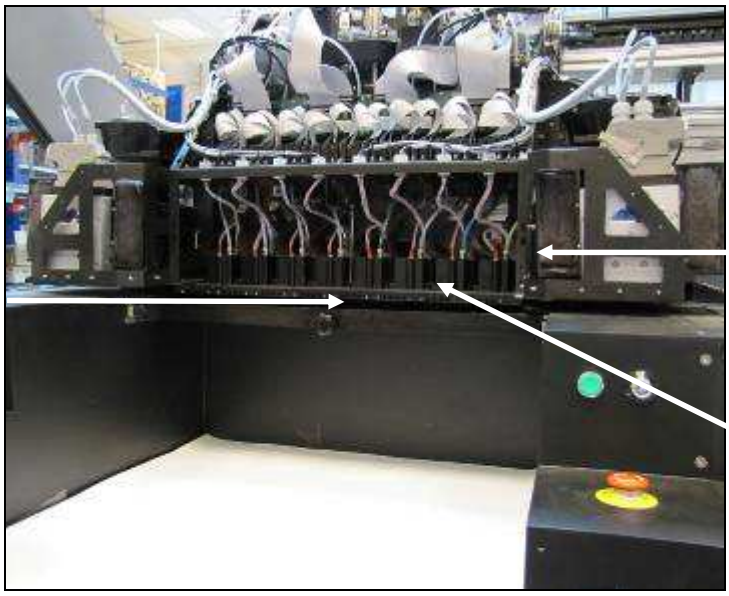
   It changes from green to gray and when the PURGE is complete, back to green.
4. Clean the Print Heads from the ink residues left from the purge.

Preparing the Print Heads and their Nozzles

It is most important that you clean the PRINT HEADS and keep their NOZZLES clear.

➤ **To clean the Print Heads:**

1. Push the INK TRAY from under the PRINT HEADS towards the back of the printer, as shown below.



2. Remove any ink that has accumulated on the PRINT HEADS, using fiber-free wipes.
3. The following figure shows the underneath of the 32 PRINT HEADS, mounted on the CARRIAGE.

   The 16 PRINT HEADS on the left have been cleaned. There is still ink residue on the other PRINT HEADS.

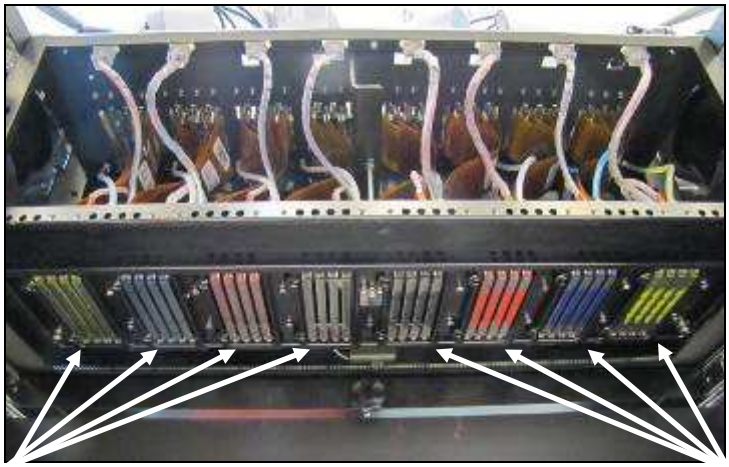


Figure 59: The 32 Print Heads

4. Using wipes, clean the PRINT HEADS as shown in Figure 59.

   When using the wipes, only pass them once over the nozzles in the head and then use a clean part of the wipe to continue the process.

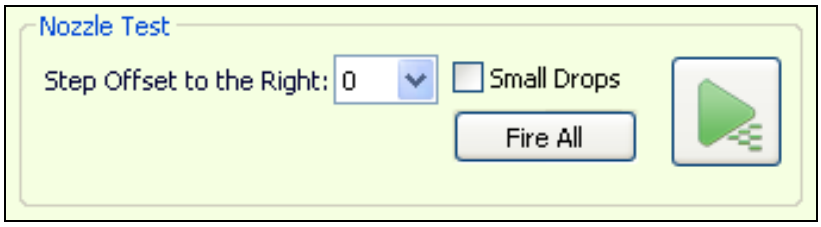
Only use the wipes to clean the Nozzles.

5. When you have cleaned all the heads, return the INK TRAY to its original location.

The Nozzle Test

You carry out a NOZZLE test to check that all the NOZZLES are clear of any obstruction and that the ink is passing through them

You carry out this procedure from the NOZZLE TEST group box in the CONTROL PANEL, as shown below.



➤ **To carry out a Nozzle Test:**

1. In the STEP OFFSET to the RIGHT box, select the required offset for the Nozzle Test on the media.
2. Click PRINT NOZZLE TEST.

   The Nozzle Test is printed.

   The following figure shows a successful NOZZLE TEST, with no missing data.

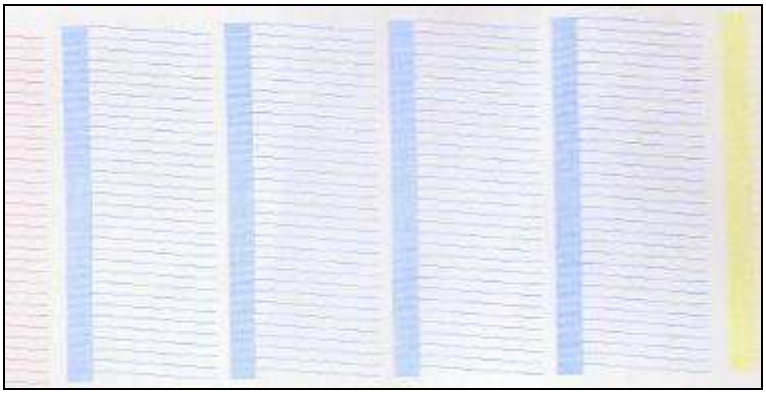


Figure 60: A successful Nozzle Test

The following figure shows an unsuccessful NOZZLE TEST, with missing data as indicated.

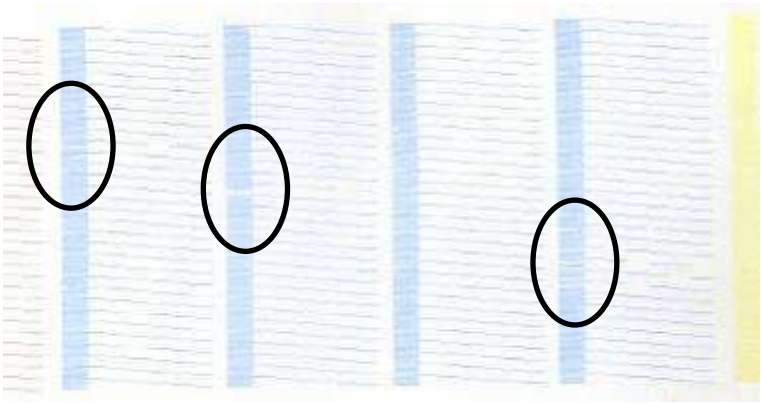


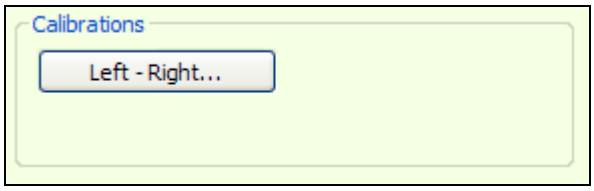
Figure 61: An unsuccessful Nozzle Test

3. Carefully examine the entire test, and purge and clean the NOZZLES where necessary, with wipes.
4. Carry out another test and carefully examine the results, until you are satisfied that all the NOZZLES are firing.

The Left-Right Calibration Procedure

In order to ensure that the-left-to-right print is correctly aligned with the right-to-left print, you have to perform a LEFT-RIGHT CALIBRATION TEST.

You carry out this procedure from the CALIBRATIONS group box in the CONTROL PANEL.



➤ To carry out the Calibration procedure:

1. In the CALIBRATIONS group box, click LEFT – RIGHT.

   The LEFT – RIGHT CALIBRATION dialog box appears.

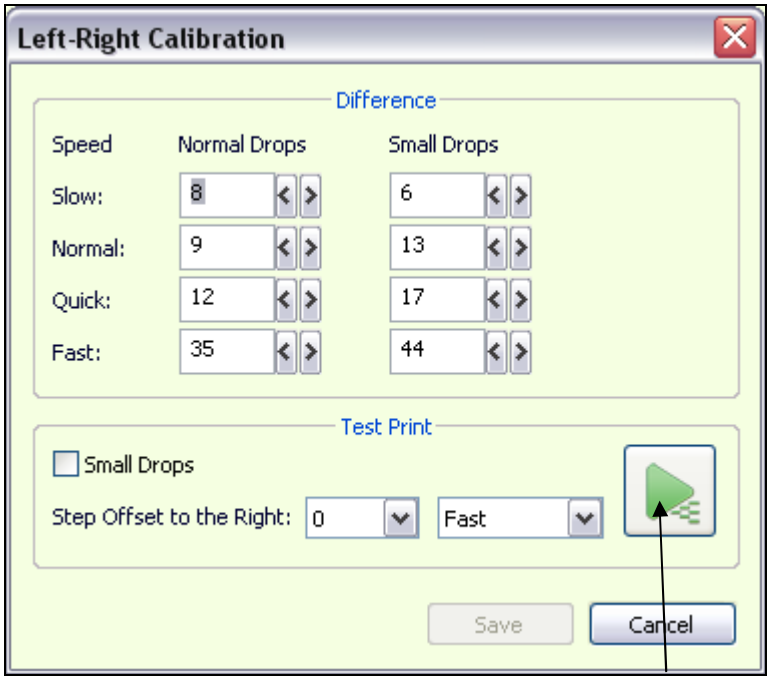


Figure 62: The Left – Right Calibration dialog box

2. Click the LEFT – RIGHT PRINT TEST FILE icon, to print the CALIBRATION target.

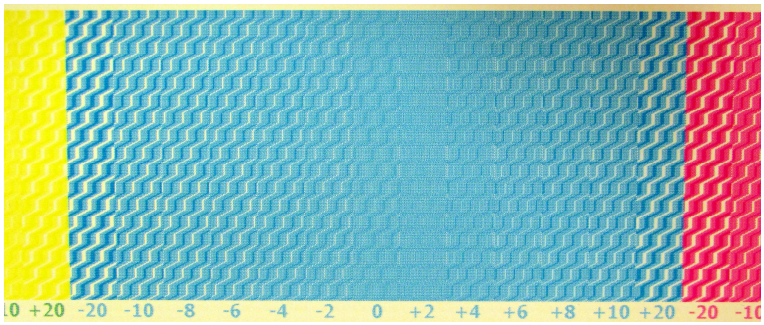


Figure 63: Left – Right Print Test before calibration

Figure 63 shows a before LEFT – RIGHT print test.

On the base line of the print-out, you will see a set of calibration numbers. you will see that just above # '+2', the print is at its smoothest. The aim is to move the printing of this smooth area (above # '+2') to # '0', (as shown below).

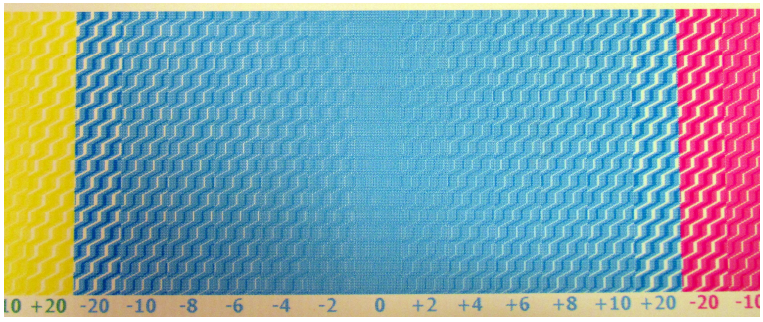


Figure 64: Left – Right Print Test after calibration

3. In the LEFT – RIGHT CALIBRATION dialog box, increase the value of the relevant speed by 2.
4. Run another test and you should see results as shown in Figure 64, page 114.
5. Repeat this test until you are satisfied.

Other Preparations

You should refer to the Around the Windows chapter for additional preparation details.

12 Printing Procedures

This chapter sets out the printing procedures, both for standard and backlit printing.

Printing a Job

Importing a Job

1. Click the Import Job button.

   The SELECT BARAK JOB window appears, as shown below.

2. Select the required `mjob` folder.

   A preview of the JOB is displayed.

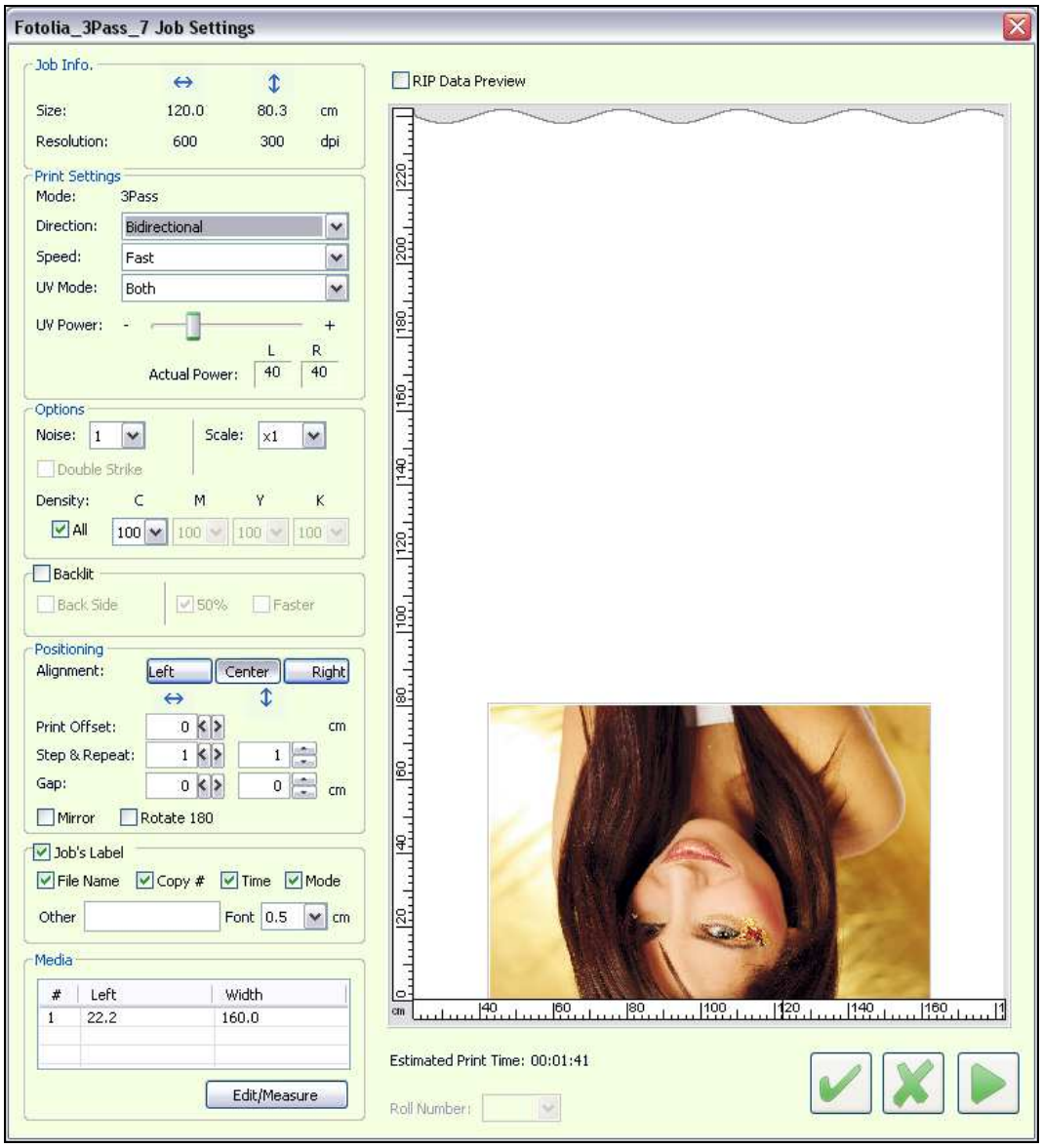
3. Click SELECT JOB.

Defining the Job Settings

When you import a JOB into the ONE-JOB WORKFLOW screen, the JOB SETTINGS dialog appears.

When you are in QUEUE WORKFLOW mode, the Job will be added to the list in the White Pane. Either double-click the required Job in the list, or right-click and choose Job Settings.

The JOB SETTINGS dialog box appears, as shown below.



Certain settings can be changed during printing. See"Changing Settings during Printing," page 121

When you open the Jobs Settings dialog box,certain values appear as factory-set defaults, according to the mode. The defaults that can be changed are indicated in the following table.

➤ **To define the job's settings:**

1. Define the required settings, as described in the following table. Some settings are not described as they are self-explanatory.

Screen Component or Group Box	Function or description
Job Info	**Size**: The width and length of the Job. **Resolution**: Set by default, according to the mode.
Print Settings	Can/Cannot be changed. **Mode: Set by default, according to the mode. Cannot be changed.** **Direction: Single or Bidirectional Printing. Can be changed before you print.** **Speed**: e.g. Fast, Quick, Normal, or Slow. The available options depend on the Resolution and Mode. Can be changed before you print. **UV Mode**: Depending on the direction of the Carriage: Leader: the front lamp is lit. Trail: the rear lamp is lit. Both: both lamps are lit. this is the default setting**.** Can be changed before you print. **UV Power** – The percentage of the lamp's total power to be used, as defined from the UV Power Setting dialog box. Actual Power: Shows the power currently used, after compensation. Can be changed before and during printing.
Options	Can be changed only before printing. **Noise**: Choose from 1-6, only if the print mode allows it. **Double Strike**: Doubles the density of the file for backlit printing, only if the print mode allows it. **Density**: (Not yet implemented) Enables after-RIP fine colour adjustments. All: When checked, adjustments will be applied on all colours. If unchecked, each colour can be independently adjusted.

Screen Component or Group Box	Function or description
Backlit	**Backlit**: Backlit mode. **Back side**: to print the back side of double side printing (flips the image and adds 'cross' marks). **50%**: Set the print density to 50%. **Faster**: (Not yet implemented.) Enables printing the Back Side at a higher speed.
Positioning	**Alignment**: Aligns the file to the Left, right or center of the media. **Print Offset**: Moves the image to the left/right with a set value. **Step & Repeat**: Set the number of horizontal (if the media width allows,) and vertical copies. Vertical copies can be changed during print. If you increase the number of copies in a job where there is no gap between copies, there will be no gap between the newly inserted copies. **Gap**: Insert a gap between images. This cannot be changed while printing a Job. **Mirror**: Mirror Flip. **Rotate 180**: Rotate 180º.
Jobs Label	To print any or all of the following data on the job: File name, Copy #, Time, Mode, other information. The font size can be changed from 0.5 to 1 cm.
Media	Location and width of the Media Roll(s).
Edit/Measure	Access to the Edit/Measure dialog box.
Roll Number	Set the file to be printed on the specified roll (left-to-right).
Job State	To put the Job on Hold or Waiting (-to-be-printed) status.

2. Click OK.

Changing Settings during Printing

The following settings can be changed during printing:

Setting	Can be changed in …
Nozzle Test	The Control Panel 1. Pause the printer. 2. Purge the Print Heads. 3. From Fire All dialog box, in the At Home Position, click Fire. Click OK.
Continuous Collector (Z)	The Control Panel (If the option is activated.)
Print Tension Power	The Control Panel
Advance Fine Tuning	The Control Panel
Calibrations	The Control Panel
Printer Status	The Printer Status dialog box (accessed by double-clicking the Printer Status Bar, to the left of the UV Status indicator in the Control Panel).
Increase/Decrease UV Power	The Printer Status dialog box
Image Position	The Printer Status dialog box (left – right, forward – backward).
Tilt	The Printer Status dialog box – if in Backlit mode, while printing on the back side.
Step & Repeat (in Y) Specify number of copies.	The Job Settings dialog box. If you have specified a Gap, then it will appear in subsequent copies.
Carriage Movement Margin	The Preferences dialog box.

Cropping a Job

You have the option of cropping a job for such tasks as proofing, checking colours, etc.

➤ **To Crop a Job:**

1. From the MAIN SCREEN, click the ADD icon.

   The SELECT BARAK JOB window appears, as shown below.

Figure 65: Select Barak Job window

2. Double-click the JOB'S PREVIEW box at the lower left corner of the SELECT BARAK JOB window.

The CROP PREVIEW dialog box appears, as shown below.

3. You can crop the job by one of two methods:

   Either: – Click and drag the cross-hair cursor over the image, to define the area that has to be cropped as shown below, and click OK.

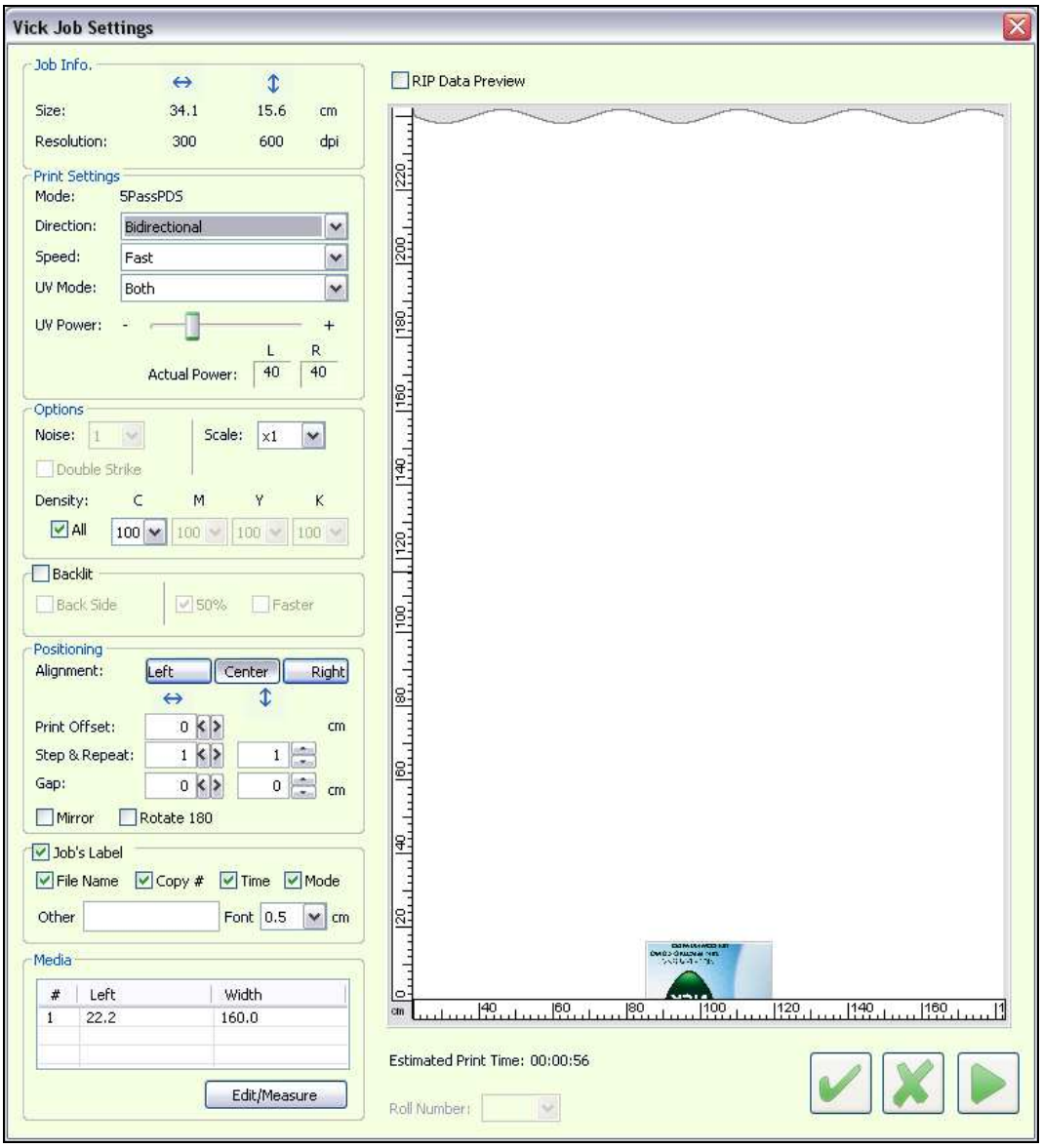
   Or: – Enter the required values at the lower right corner of the dialog box as shown below, click APPLY and then OK.

The Crop Preview dialog box closes.

4. In the Jobs Preview box, the Job's preview including the crop area is displayed, as shown below.

5. Click SELECT JOB.

The cropped area appears in the JOB SETTING dialog box, as shown below.



13 Printing Modes

This chapter describes the various printing modes available with the **Barak HS**.

Printing on Mesh

In Mesh printing, you only have to configure the hardware.

The procedure for printing on Mesh media is exactly the same as described in Chapter 10 for Roll-to-Roll and Free Fall, except for the following steps.

To avoid any damage to the Print Heads, the Carriage must be raised before the following procedures.

➤ **To print on Mesh Media:**

1. Raise the CARRIAGE sufficiently high, so that it will not collide with the Wings.
2. Raise the WINGS of the PRINT TABLE by pushing the button marked WINGS, on the USER'S CONTROL PANEL.

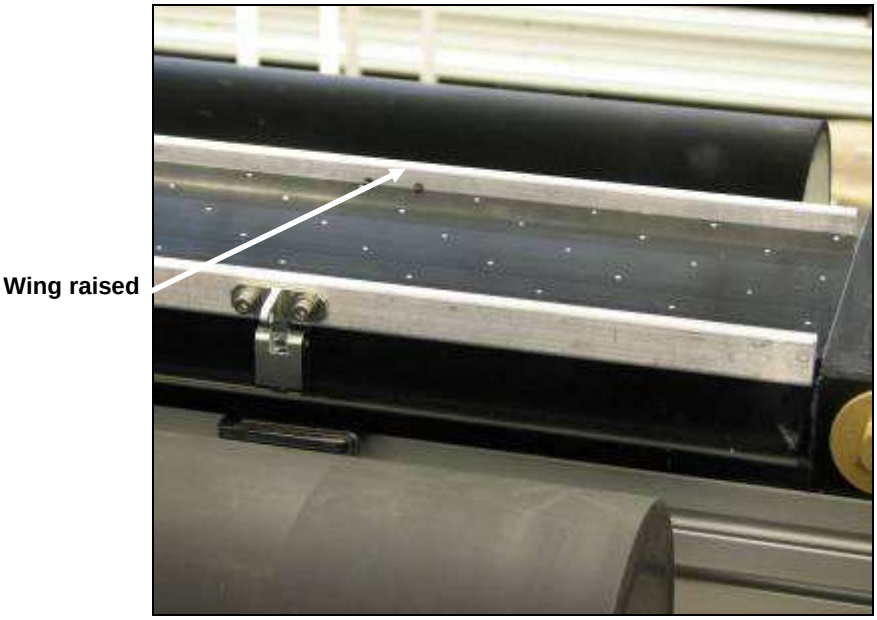


Figure 66: Print Table with raised Wings

3. Place the absorbent cloth along the PRINT TABLE, as shown below.

Figure 67: Print Table with Absorbent Cloth and media loaded

The printer is now ready to print on Mesh Media.

To return to the other printing modes, lower the WINGS by pushing the WINGS button again on the USER'S CONTROL PANEL, and remove the absorbent cloth.

If necessary, clean the PRINT TABLE from any ink residue.

Multi-Roll Printing (optional)

The procedure for Multi-Roll printing is very similar to that of printing on a single roll.

When printing on more than one roll simultaneously, you can either print the same job on all the rolls or a different Job on each roll. This feature is called COMBINE JOBS.

Combine Jobs

The COMBINE JOBS feature is enabled from the QUEUE SCREEN, as shown below.

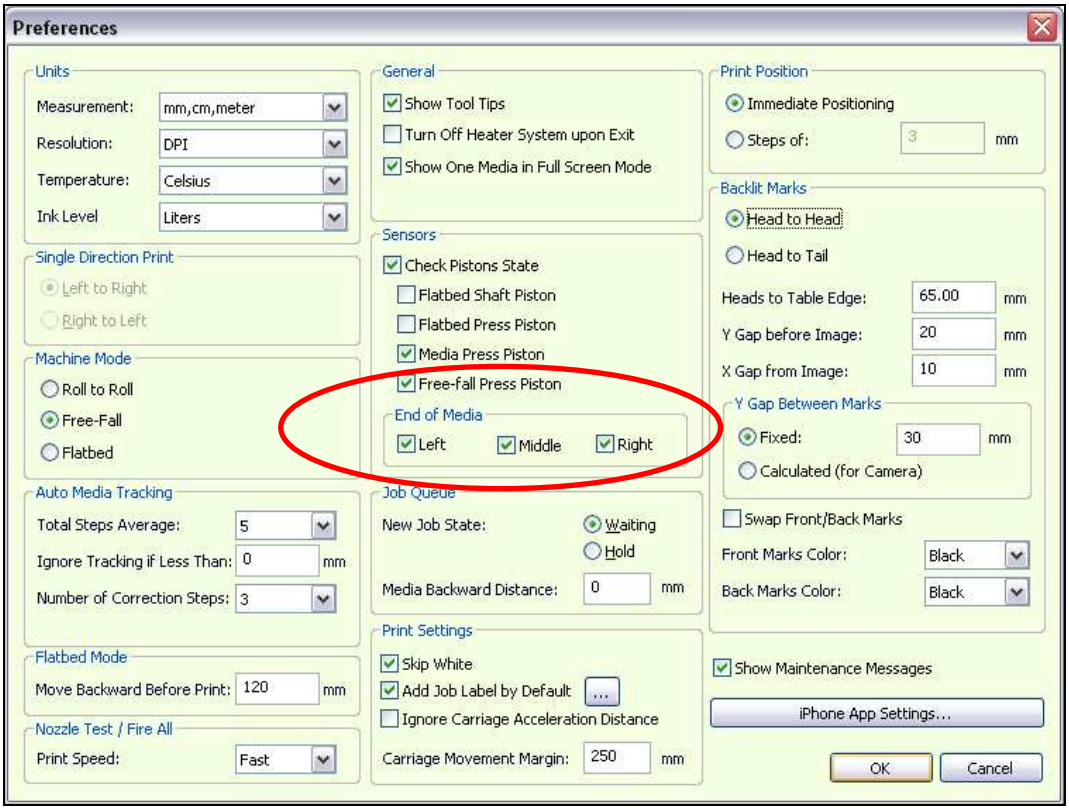
The Combined Jobs check box is active only when more than one roll is indicated as being present, in the Measure Media dialog box.

Configuring the Software

➢ **To Configure the software:**

1. From the MAIN SCREEN, select TOOLS and from the drop-down menu, choose PREFERENCES, as shown below.

The PREFERENCES dialog box appears, as shown below.



2. In the SENSORS group box, check the appropriate END OF MEDIA options and click OK.

Preparing the Printer for Multi-Roll Printing

➤ **To prepare the printer for Multi-Roll printing:**

1. Load the required number of Media Rolls. For the loading procedure, see Chapter 10.
2. From the MEDIA SETTINGS dialog box, select the appropriate number of rolls to be printed, as shown below.

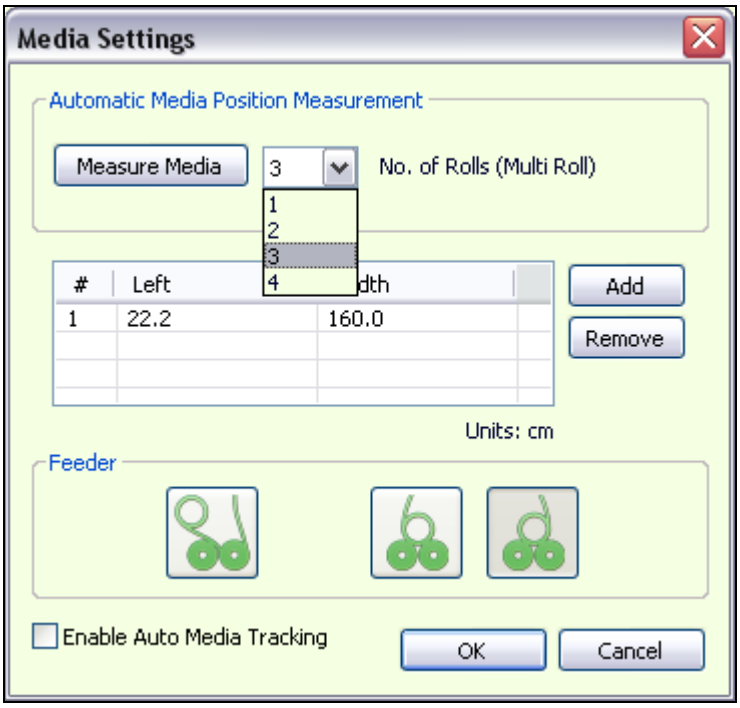


Figure 68: Media settings dialog box – number of rolls

3. Select the appropriate FEEDER.
4. Measure the media and click OK.

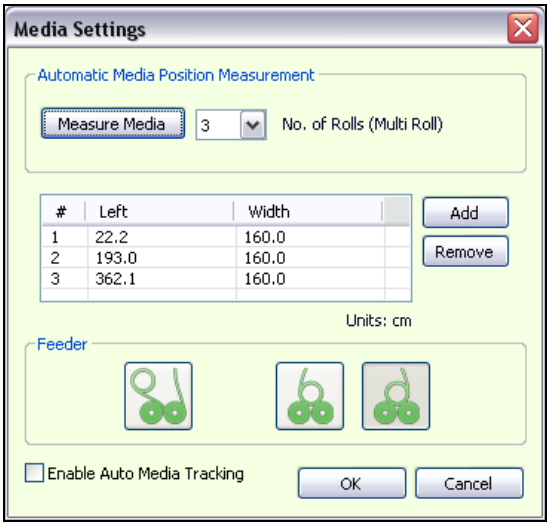


Figure 69: Media Settings dialog box – measured

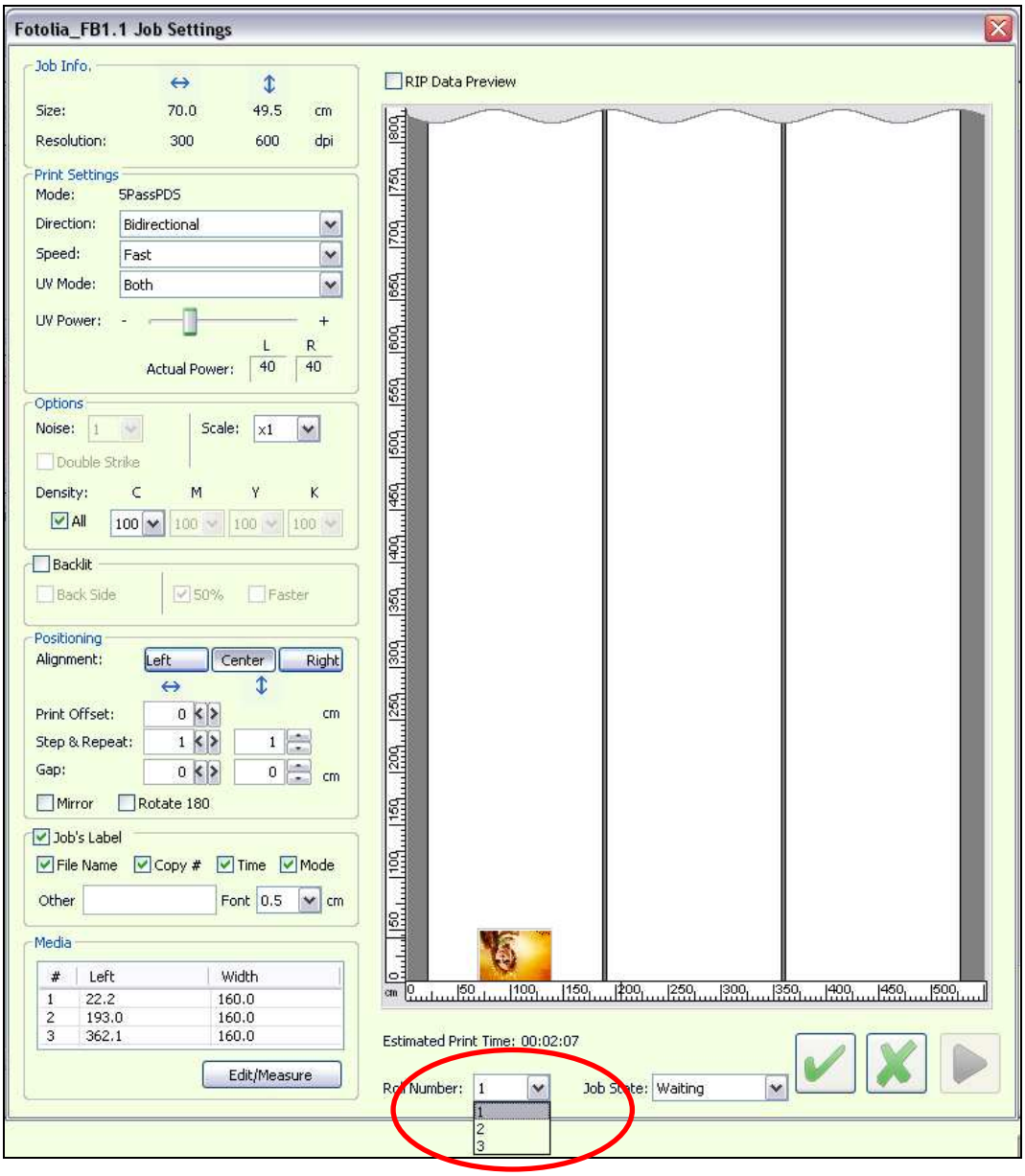
Importing the Jobs

1. Check the COMBINE JOBS check box.
2. Import the required job(s).

   The JOB SETTINGS dialog box appears.

   As a default, the first JOB you import is assigned to Roll #1 (the left-hand). The second Job will be assigned to Roll #2 and the third, to Roll #3 if loaded, or #1 if there are only two rolls and so on, until all the Jobs have been assigned.

   You can now change the number of the roll for which the JOB has been assigned. This is done by selecting the required number, from the ROLL NUMBER combo box, as shown below.



Due to different pass widths, all files must be in the same print mode.

3. After all the required files are imported, start the printing.

   The Barak FE will then take all the files in the Queue, and will create a virtual 'Package'. Once this 'Package' has been printed, the Carriage will return to the home position.

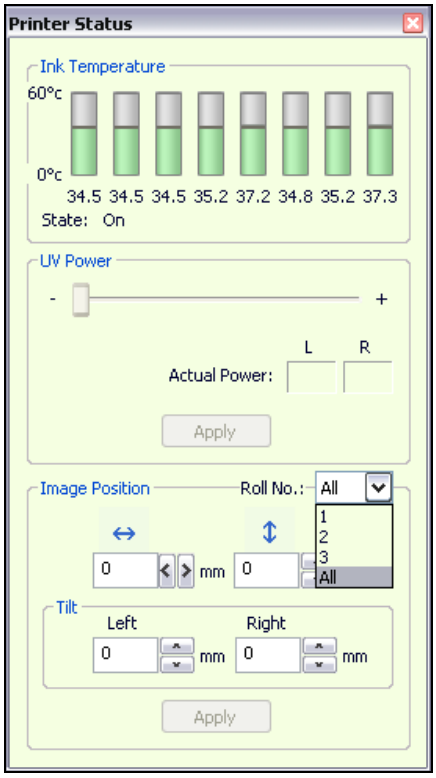
Files that are imported after the 'Package' has been sent to print, will be included only in the next 'Package'.

Image Position Adjustments

➤ **To adjust the position of the image:**

- You can change the position of the images on either one roll or all the rolls to be printed on.

  From the IMAGE POSITION group box in the PRINTER STATUS dialog box, choose the required roll number from the ROLL NO. combo box, or the ALL option—for repositioning all the images.



In the case of removing one roll after the Package has been printed, all subsequent jobs that were assigned to that roll, will automatically be re-assigned to Roll #1.

Single Job – Multi-Roll Printing

➢ **To print a Single Job in Multi-Roll mode:**

- The procedure is the same as that for printing COMBINE JOBS, except that the COMBINE JOBS option should be unchecked. If it is unchecked, the Barak FE will enable you to step-and-repeat the job, on all the available rolls.

The following figure shows a SINGLE JOB printed in Multi-Roll mode.

Figure 70: Single Job printed on Multi-Roll

Flatbed Printing (optional)

In Flatbed printing you have to prepare the software and HARDWARE configuration, before you print.

The media is fed onto a FLATBED table.

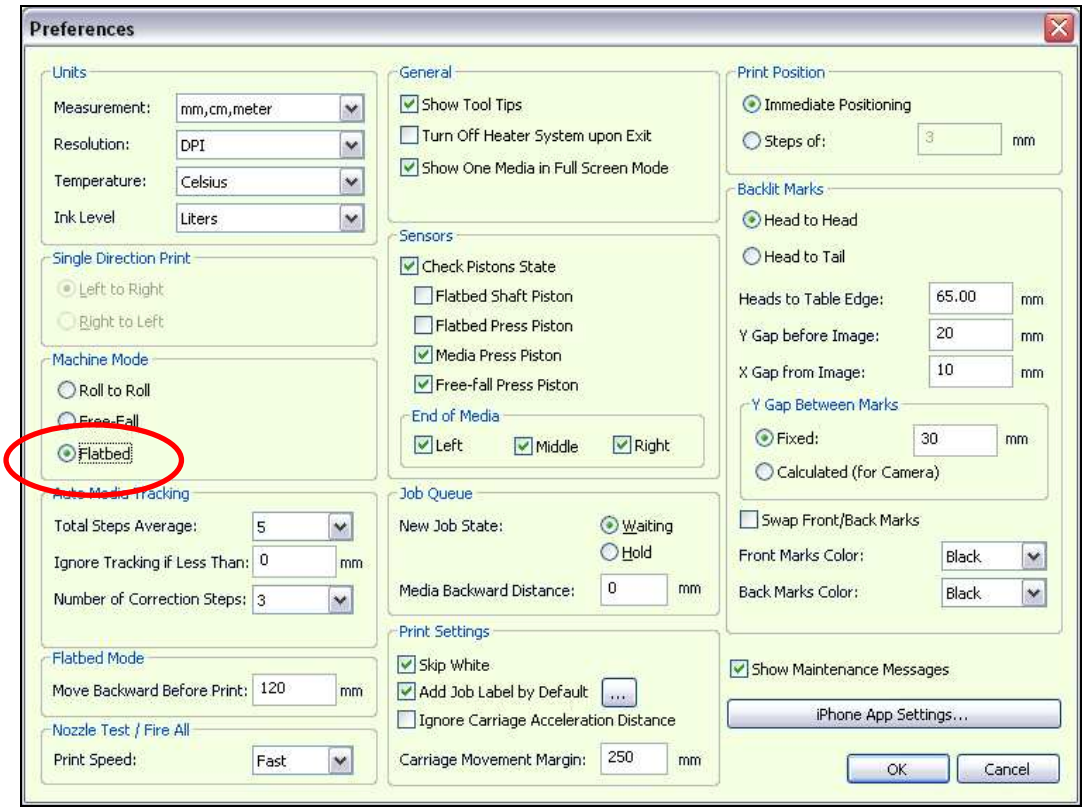
To avoid any damage to the Print Heads, the Carriage must be raised before the following procedures.

Configuring the Software for Flatbed Printing

➤ **To configure the software:**

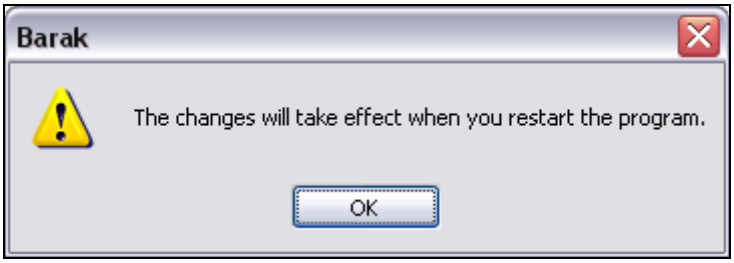
1. From the MAIN SCREEN, select TOOLS and from the drop-down menu, choose PREFERENCES, as shown below.

The PREFERENCES dialog box appears, as shown below.



2. In the MACHINE MODE group box, check the FLATBED option and click OK.

The following window appears.



3. Click OK and restart the program.

Flatbed Media Flow

Figure 71 shows the media's path for Flatbed printing.

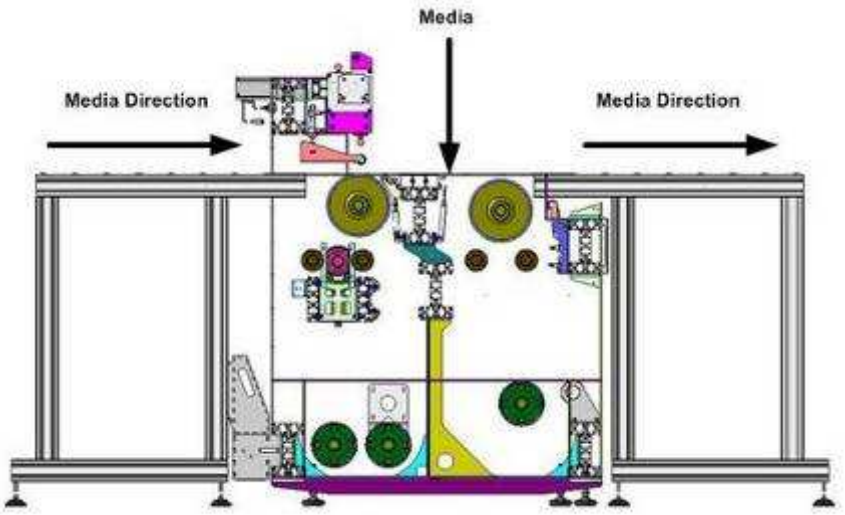


Figure 71: The Path of the media for Flatbed Printing

Loading the Media

Before loading the media, you have to dock the FRONT and BACK FLATBED PRINTING TABLES to the printer, as described in Chapter 11.

➤ **To load the media:**

1. Check that the FLATBED MEDIA PRESSURE ROLLERS are in the UP position as shown below. If they are not, press the FLATBED button located on the USER'S CONTROL PANEL. The rollers will rise to the UP position.

Flatbed Media Pressure Rollers

2. Place the media on the rear FLATBED table and feed it through the printer, over the PRINT TABLE, until its front edge is located over the PRINT TABLE's front edge, as shown below.

Table's front edge

Media's front edge

Figure 72: Media on the Print Table

3. Press the FLATBED button located on the USER'S CONTROL PANEL.

   The MEDIA PRESSURE ROLLERS are lowered onto the media, as shown below.

   You can now start printing.

Figure 73: Media Pressure Rollers 'DOWN'

The printed media is fed onto the front FLATBED TABLE and is ready to be unloaded.

Figure 74: Printed Media on the Front Flatbed Table

Unloading the Media

➢ **To unload the printed Media:**

1. Raise the FLATBED MEDIA PRESSURE ROLLERS.
2. Remove the printed media from the FRONT FLATBED TABLE.

Loading Rigid Media on a Flatbed Using the Remote Control Unit

You can load rigid media onto the FLATBED using the REMOTE CONTROL UNIT.

Figure 75: The Remote Control Unit

PRESS BUTTON #	'O:
1	Raise and lower the Front Wing
2	Raise and lower the Flatbed Media Pressure Rollers.
3	Activate or deactivate the vacuum (Preset on the Vacuum Regulator).
4	Spare

➤ **To load the media using the Remote Control Unit:**

1. On the REMOTE CONTROL UNIT, press Button #1.

   The FRONT WING rises.

2. With the leading edge of the media resting exactly on that of the FRONT WING, make sure that the two edges are in contact with each other, for their entire width.
3. Press Button #2.

   The FLATBED PRESS ROLLER lowers and grips the media.

4. After lowering the FLATBED PRESS ROLLERS, press Button #1 again to lower the FRONT WING.
5. Press Button #3.

   The VACUUM TABLE PUMP is activated and will keep the media attached to the VACUUM TABLE while the FLATBED ROLLERS feed the media under the PRINT HEADS.

The media is now ready to be printed.

Unloading the Media using the Remote Control Unit

➤ **To unload the printed media using the Remote Control Unit:**

1. Press Button #2.

   The FLATBED PRESS ROLLERS rise.

2. Press Button #3.

   The vacuum turns off.

3. Remove the printed media.

Backlit Printing

The Two Workflows

There are two methods of workflow for creating Double-side Backlit printing.

- Head-to-Head printing
- Head-to-Tail printing

Head-to-Head Printing

This method is recommended for short prints.

In this method, the front side is printed, then the media is rolled back, the roll is flipped, and then reloaded to print the back side. Consequently the image's 'head' is the first to print on both front and back sides.

When printing the front side, the front registration marks will be printed for a specified distance, and only then, printing of the image will start.

Front-side print	Back-side print

This blank area is used for rough registration adjustments when printing the back side, so that the image will not be corrupted.

Head-to-Tail Printing

This method is recommended for printing long prints.

In this method, the front side is printed, the printed media is collected on an external core, and at the end of the front side print, the collected media is taken to the back of the printer, and reloaded for back side printing. The difference between this method and the Head-to-Head method is that the image's 'head' is the first to be printed on the front side, but the image's 'Tail' is the first to print on the back side.

Front Side Print	Back Side Print
Printing starts here	Printing starts here

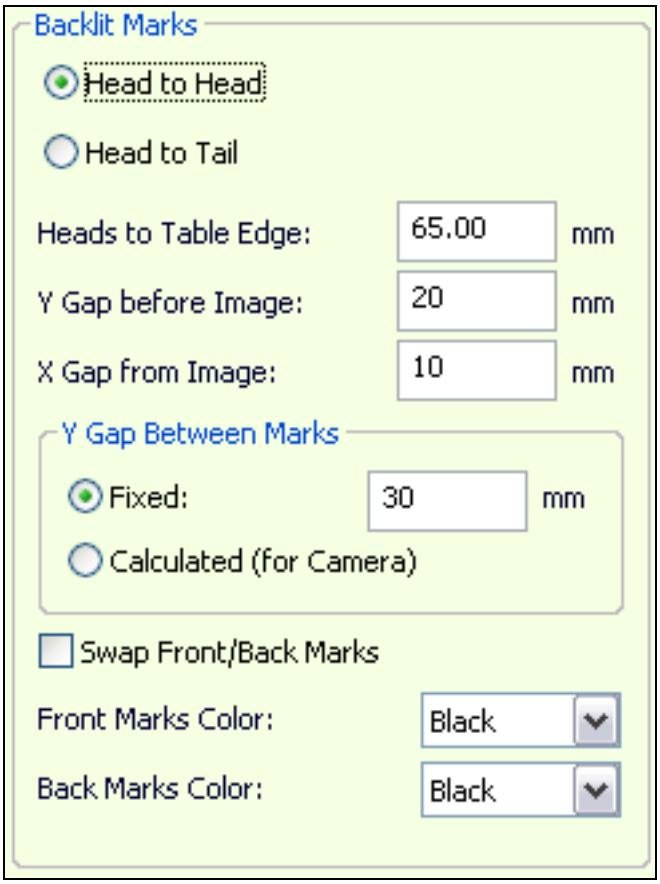
The blank area mentioned above, will be printed at the end of the front side, so when starting to print the back side, it will be located at the beginning.

In addition, at the end of the front side print, two thin horizontal lines will be added to the print. The first printed line will be used to align the media to the edge of the printing table. The second line will indicate where to cut the media so you will have enough spare media for loading when you print the back side.

Backlit Parameter Settings

- From the TOOLS menu, choose PREFERENCES.

  The Backlit Settings are defined in the BACKLIT MARKS group box, as shown below.



You can adjust the current default settings where required, as shown in the following list.

- **Head-to-Head** – for choosing the Head-to-Head method, as described above.
- **Head-to-Tail** – for choosing the Head-to-Tail method, as described above.
- **Heads to Print Table Edge** –The distance from the Print Head to the Print Table Edge.
- **Y gap from Image** – The length of the blank area before or after the image (according to the Backlit Method #1 or #2).
- **X gap from Image** – The distance between the image's edge and the registration mark on the X axis.
- **Y gap between Marks** – The distance between two consecutive registration marks along the Y axis.

  Fixed: User-defined gap
  Calculated (for Camera) software defined gap

- **Swap Front/Back Marks** – printing the front registration marks (4 squares) on the back side, and the back registration marks (cross) on the front side.
- Front Marks Color – Enables you to change the colors of the Front Side Marks.
- Back Marks Color– Enables you to change the colors of the Back Side Marks.
  When you have to stop and restart the printing, it is preferable to use a different color, to avoid confusion with the first print.

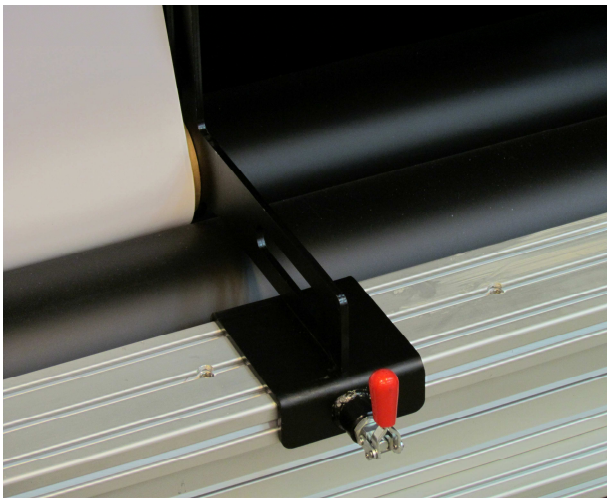
14 Loading and Unloading the Media

Loading the Media for Front Side Printing

Front side loading is applicable for both Head-to-Head and Head-to-Tail printing.

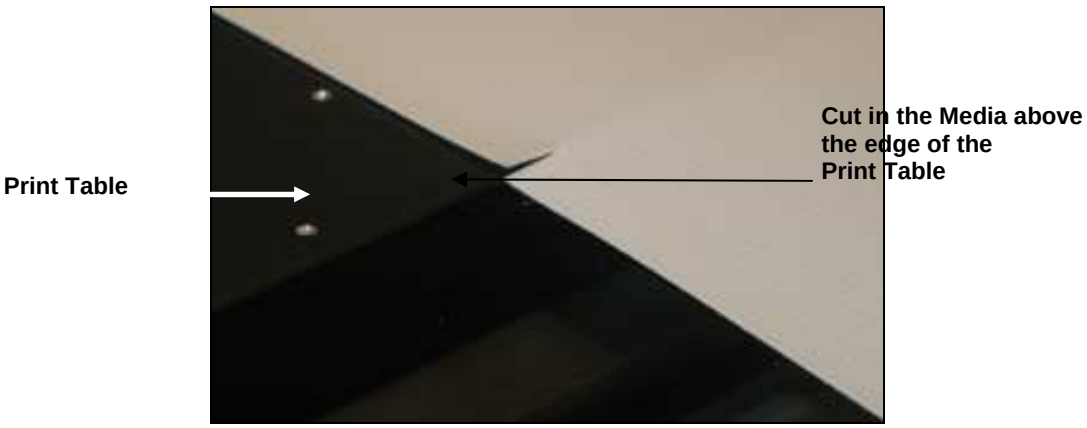
➢ **To load the media:**

1. Load the media so that it lays exactly 90° to the Print Table.
2. To help the media unwind, be printed on, and collected as evenly as possible, attach the LIMITERS to the rear and front side of the printer, as shown below.



3. For Head-to-Head printing, make a cut on both edges of the media, next to the leading edge of the PRINT TABLE, as shown below.

   These cuts will be used as references when you have loaded the printed media for printing on the back side.



4. Measure the media.

If the Media is not correctly aligned, it will be difficult to obtain good registration for the back side printing.

Loading the Media for Back Side Printing

Head-to-Head

➤ **To load the media – Back Side:**

1. Using the MEDIA BACKWARD icon, rewind the printed media.
2. Flip the printed media core.
3. Place the printed media between the LIMITERS, as shown below.

The Flipped (printed) Media loaded for Back Side printing

4. Load the flipped roll.
5. Use the two cuts made before printing the front side to align the media to the PRINT TABLE.
6. Use the MEDIA FORWARD and the MEDIA BACKWARD icons with the LENGTH box to finely adjust the alignment.

7. Measure the media.

Head-to-Tail

➢ **To load the media – Back Side:**

1. Cut the media according to the second thin line printed at the end of the front side.
2. Take the collected media from the front of machine, and placing the printed media between the LIMITERS, reload it.
3. Using the thin line as a guide, align the media to the PRINT TABLE.
4. Use the MEDIA FORWARD and the MEDIA BACKWARD icons with the LENGTH box to finely adjust the alignment.
5. Measure the media.

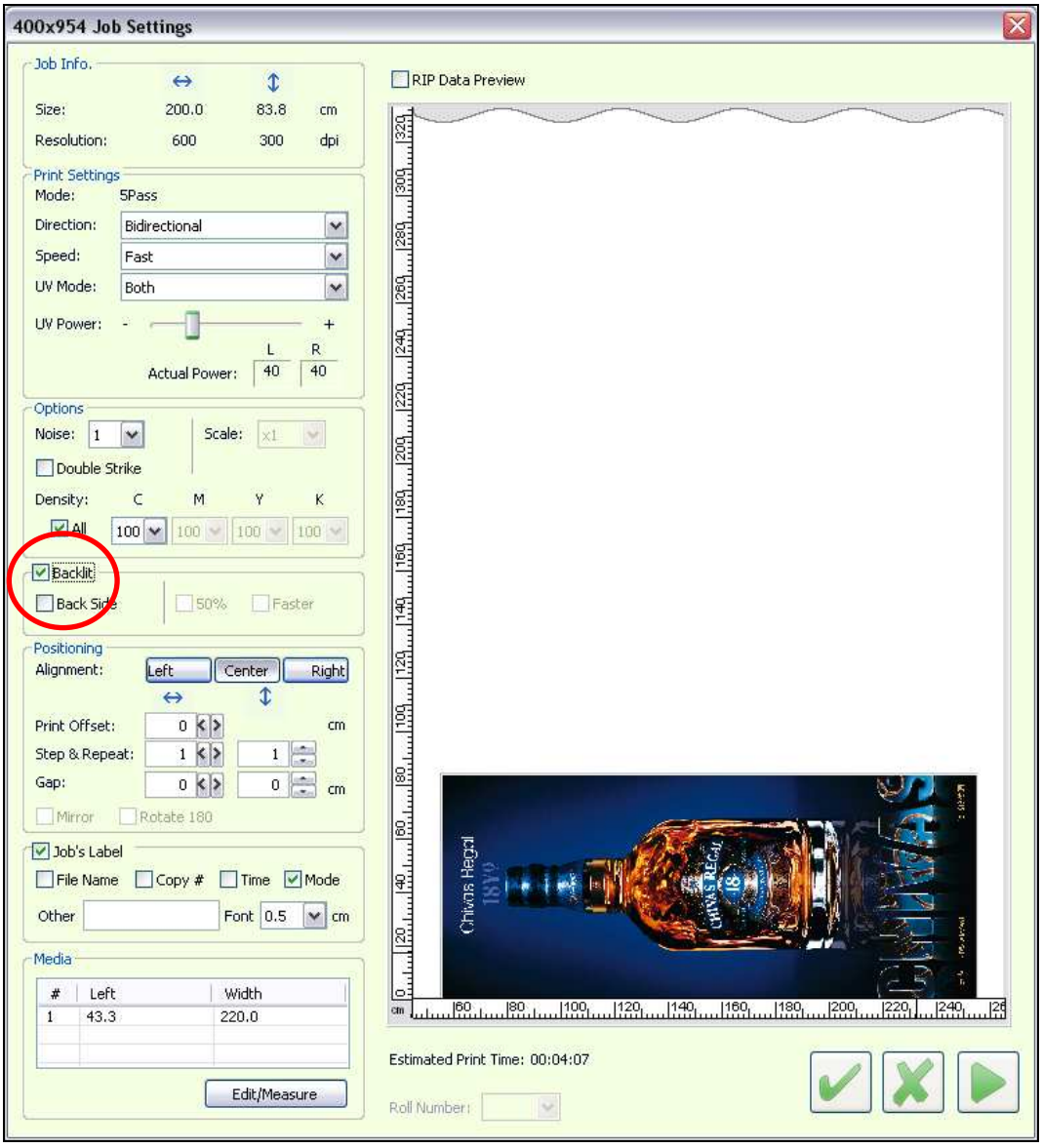
15 Printing a file

Front Side Printing

➤ **To print the file Front Side:**

1. Import the job.
2. Double-click the job.

   The JOB SETTINGS dialog box appears.



3. Check the BACKLIT option.

Head-to-Head or Head-to-Tail is activated according to the option that you chose in the Backlit Marks group box, from the Preferences dialog box.

4. Click OK and print the front side.

The following figure , page **Error! Bookmark not defined.**shows the printed Front REGISTRATION MARKS.

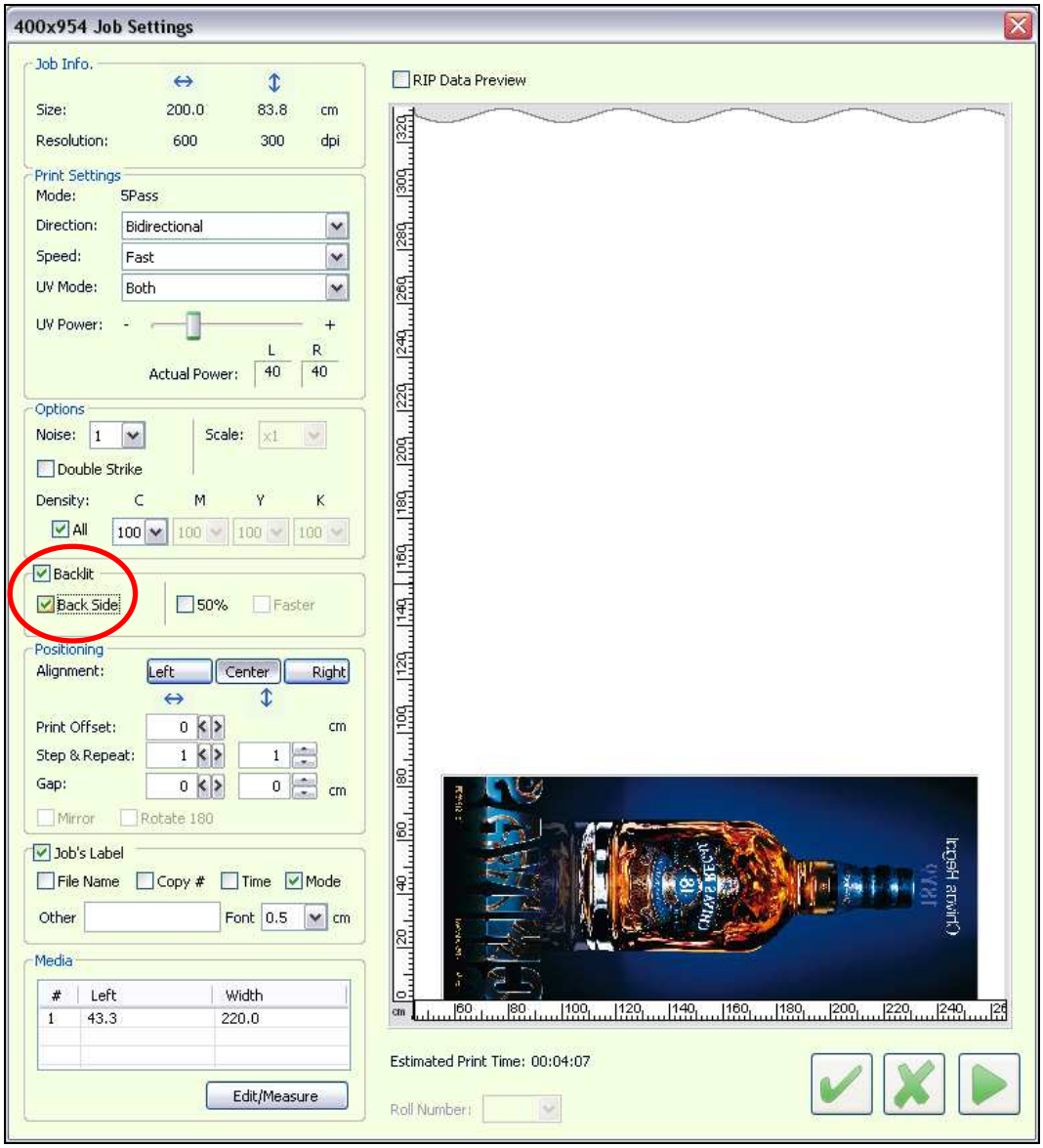
Front Registration Marks

Back-side printing

➤ **To print the File – Back Side:**

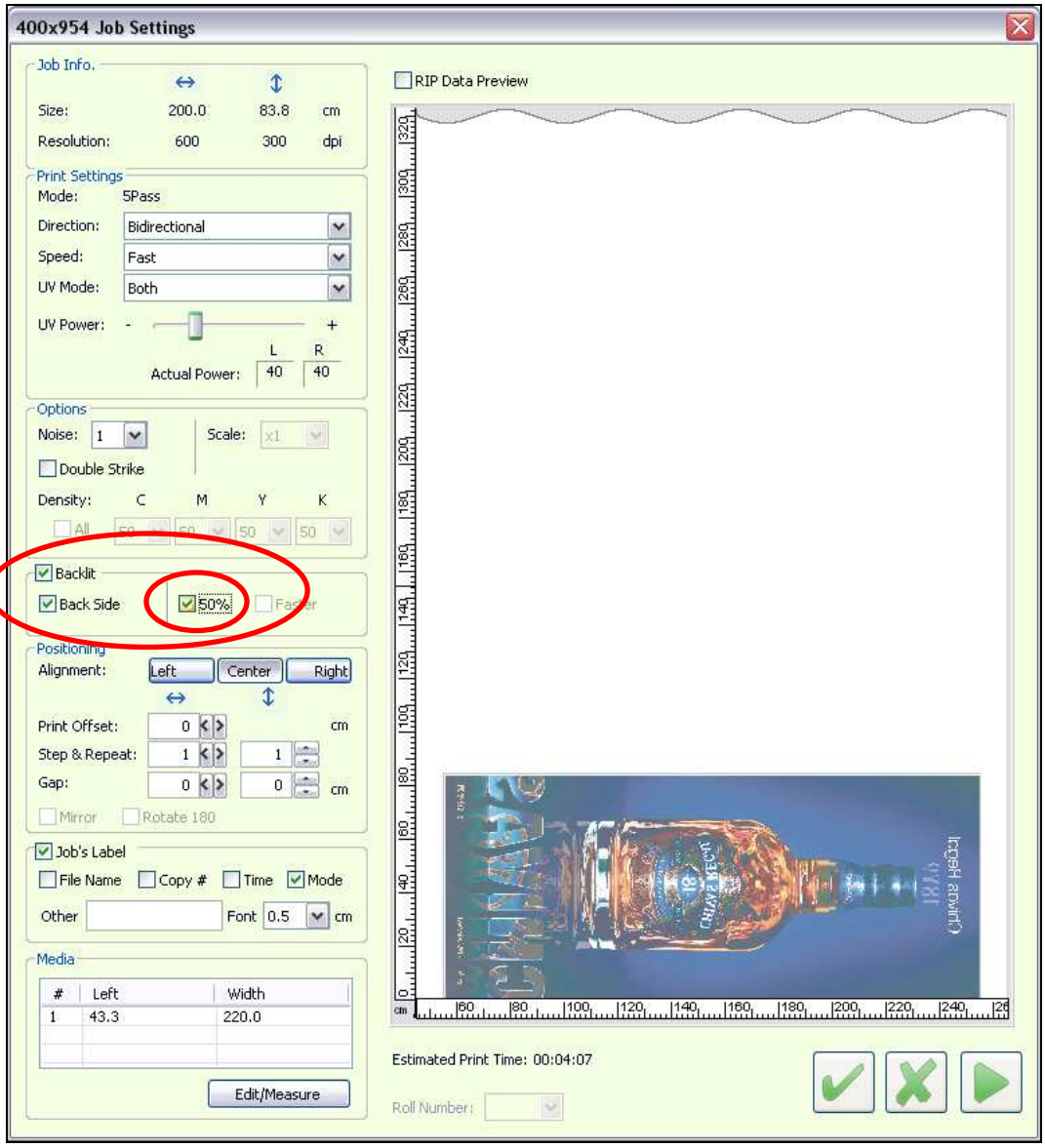
1. Move the successfully printed job from the green pane to the white pane.
2. Double-click the job.

   The JOB SETTINGS dialog box appears.



3. Check the BACK SIDE option.

When printing the back side, you have the option to print it with regular density (100%), or with 50% density (not available for all modes). Choose the desired option by checking or un-checking the 50% box.



4. Click OK to print the back-side.

Front-side and back-side registration

The Registration Procedure

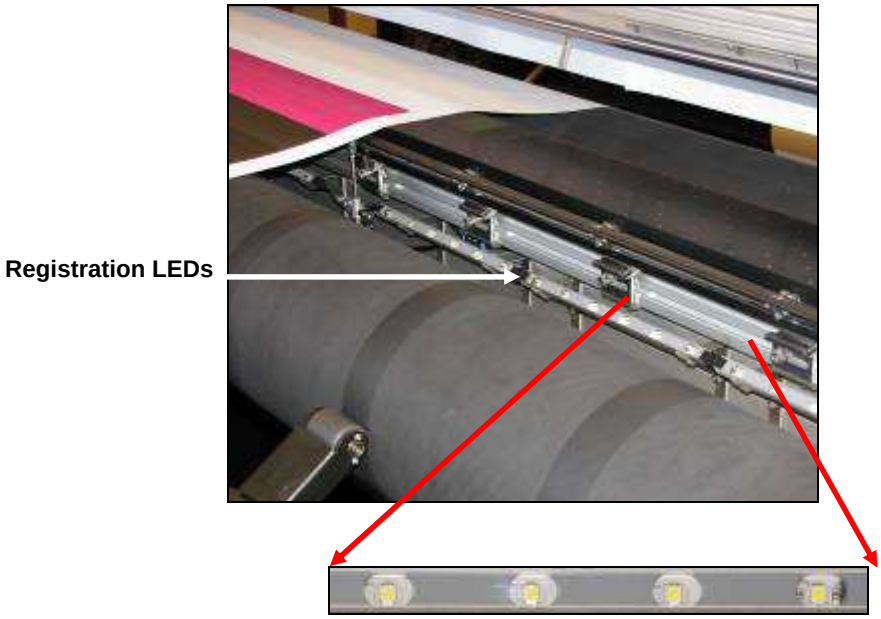
To achieve Front-to-Back registration, the BarakFE adds registration marks to the sides of the printed file, along the
Y axis.

The front registration mark looks like this: ■■

The back registration mark looks like this: ┼

A set of LED lights is installed at the front edge of the Print Table (shown below) to illuminate your media from underneath. This will help you see the front side registration marks through the media. This will assist you in placing the cross, exactly

in the middle of the four squares, thus positioning the print, exactly aligned to the print.



Registration LEDs

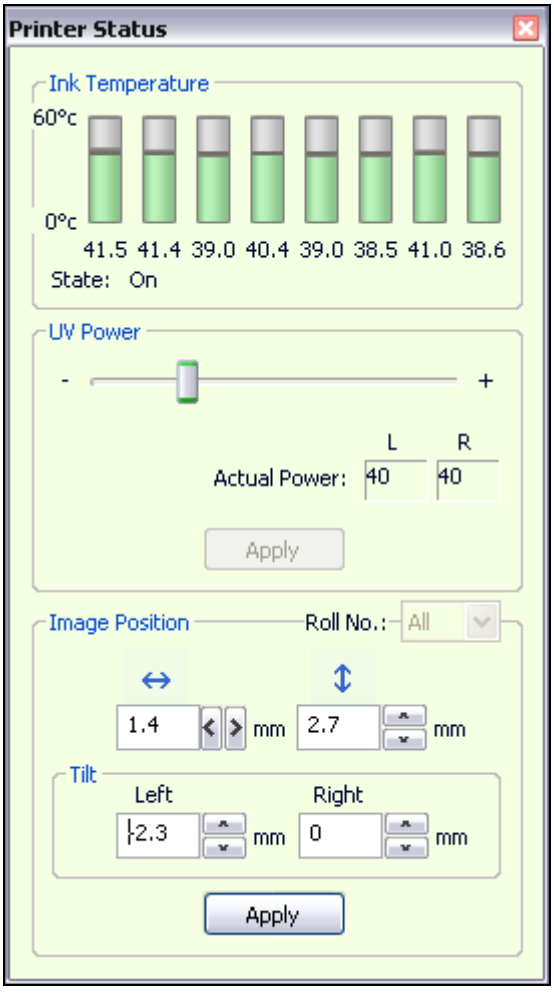
From the BarakFE, you can move the printed image on the X axis (left-right), the Y axis (up-down). You can also tilt the image if there is a difference in height between the registration marks on both sides. (The tilt is limited to 300 lines).

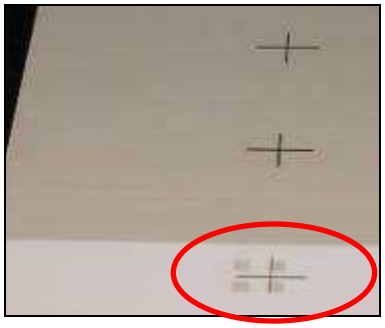
Manual Registration

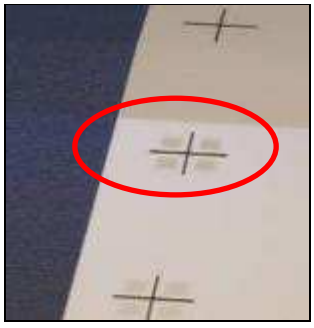
MANUAL REGISTRATION is carried out when you do not have cameras.

➤ **To set the Registration Marks manually:**

1. Start the BACK SIDE printing and pause it after a few passes, just when the first pair of registration marks has reached the LED lights and you can see both front and back marks.
2. Check the REGISTRATION MARKS and from the IMAGE POSITION group box in the PRINTER STATUS dialog box, make the required adjustments, as shown below and click APPLY.







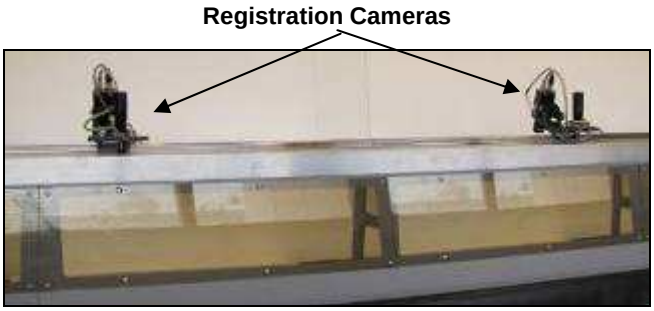
The Rear Registration Mark – Unaligned **The Rear Registration Mark – Aligned**

3. Observe the printing and if necessary, repeat this procedure.

Semi-automatic Registration using Cameras

In order to facilitate the registration procedure, Matan provides a pair of optional cameras, that enables you to observe the registration marks from the workstation.

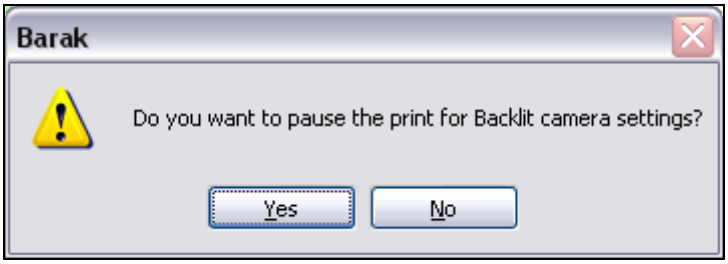
The cameras are installed on the UV protection hood, as shown below.



Registration Cameras

1. Before you start printing, open the VIEW menu and choose the BACKLIT CAMERA VIEWER option.
2. From the MAIN SCREEN, Click PRINT.

   After a pre-defined number of passes (according to print mode), the printer pauses at the left side of the media and the following message appears:



3. Click YES.

The Carriage will now move to the home position.

Make sure that the area at the front of the printer is clear.

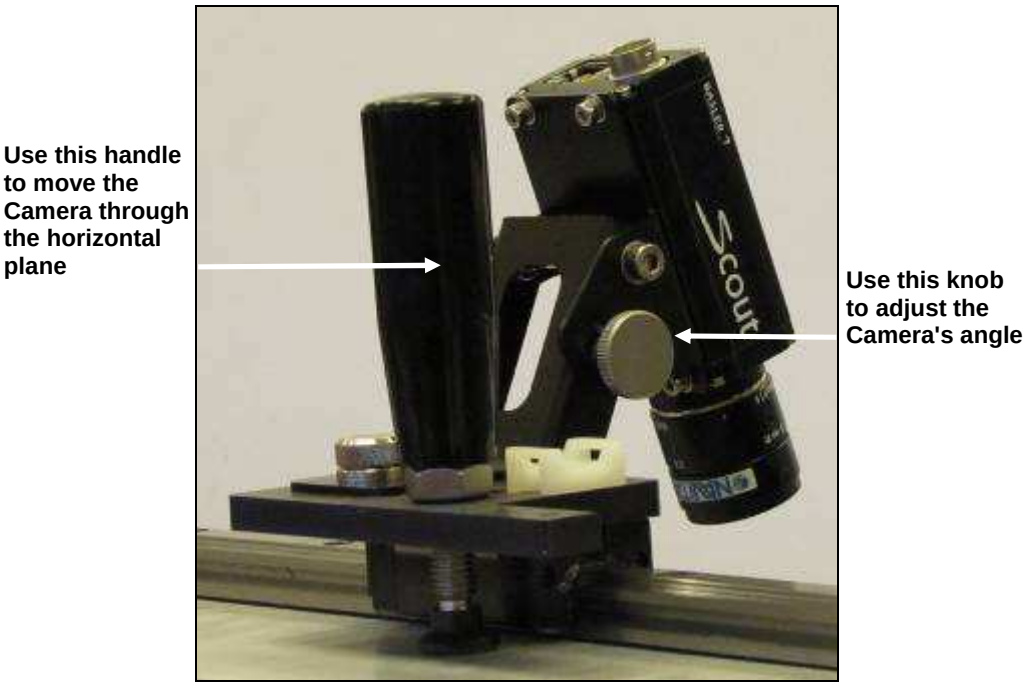
You now have to adjust the cameras.

Adjusting the Cameras

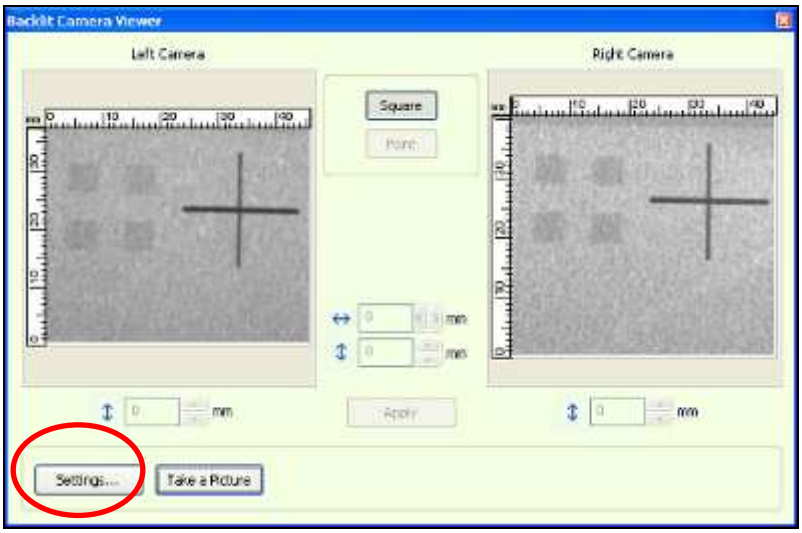
The two adjustments that you can make to the camera's orientation are as follows:

- Location of camera
- Camera's angle to the PRINT TABLE.

1. Bring the cameras to the required location.

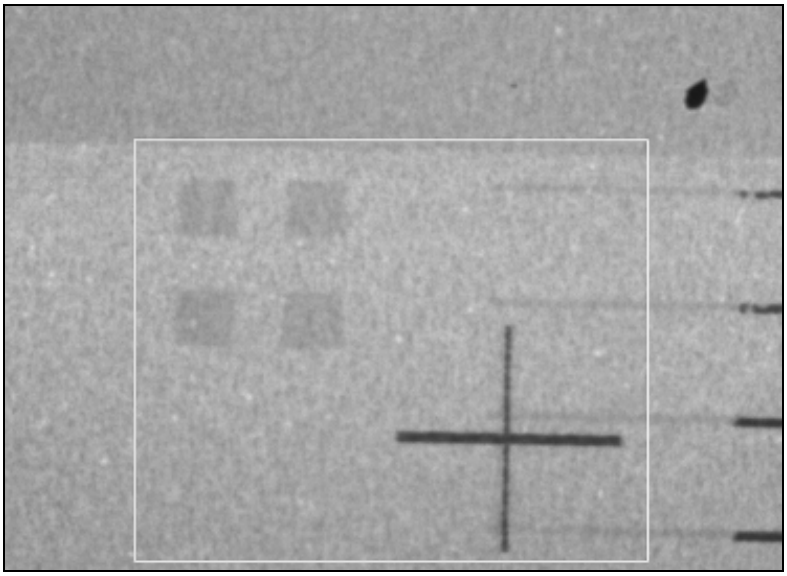


2. To adjust the cameras, in the BACKLIT CAMERA VIEWER dialog box, click SETTINGS, as shown below.

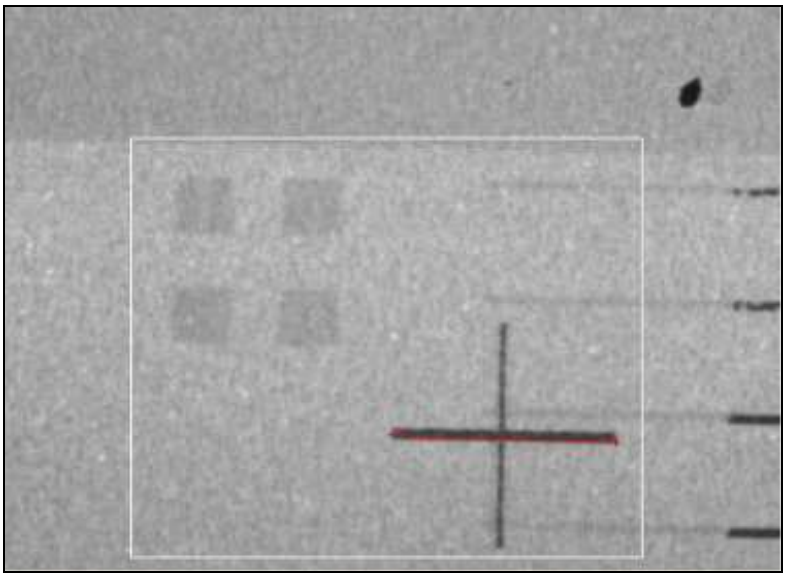


The Camera Settings dialog box appears with the default view of the left camera.

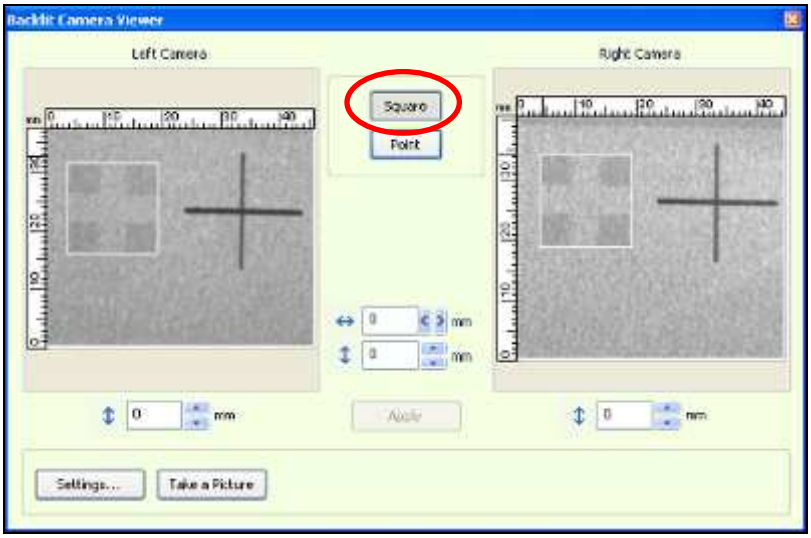
3. From the Camera Calibration group box, click Crop and adjust the crop area so that it only includes both the four squares and the cross, as shown below.



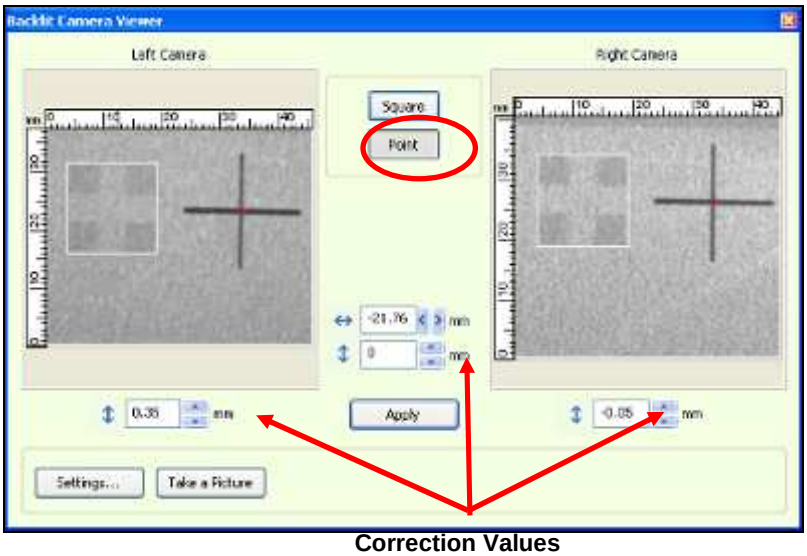
4. Click Size.
5. Click and drag the cursor from one end of the horizontal line (of the cross) to the other, as shown below.



6. Repeat steps 3-5 for the right camera by clicking RIGHT CAMERA.
7. Click CLOSE.
8. In the BACKLIT CAMERA VIEWER dialog box, click SQUARE.
9. Click on the top left corner of the top left square.



10. All four squares are automatically marked. Repeat this action for the right camera.
11. Click POINT and click the center of the cross, for both cameras, as shown below.



Correction Values

The required corrections are displayed, as shown above.

12. Click APPLY.

    A message informing you that the software is currently adjusting the image, appears between the two cameras.

13. Observe the printing and if necessary repeat steps 8-10.

16 Checking the Consumables

The Ink System

The following two figures show the MAIN INK SYSTEM, with the different pumps.

Figure 76: The Ink Cabinet with Type A Pumps

Figure 77: The Ink Cabinet with Type B Pumps

The Ink

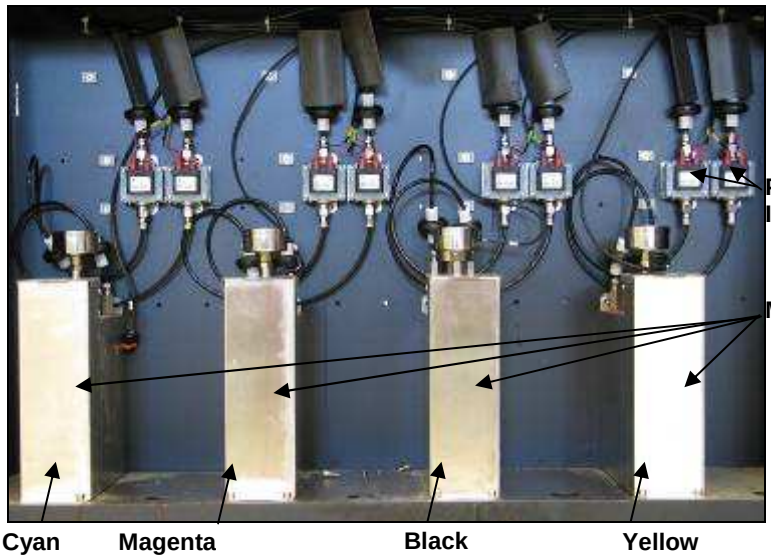
- Check that there is sufficient ink in all the four MAIN INK TANKS.
  The order of the INK TANKS' location (from left to right) is: Cyan, Magenta, Black and Yellow, as shown below.

Pumps and Filters

The INK PUMPS (two for each color,) deliver the ink from the MAIN INK TANKS to the SECONDARY INK TANKS (two for each color) which are located on the CARRIAGE.

The components comprising TYPE B PUMPS, are installed in the same format as in Figure **Error! Reference source not found.**, page **Error! Bookmark not defined.**.

For full details of the printing procedures, see "Printing Procedures," page 117 in this document.



Ink Filters

Each of the four ink systems has its own four filters, two non-return valves and two protective sleeves.

You must make sure that all four protective sleeves are always covering their non-return valves. Otherwise, the ink will absorb light and prematurely activate the curing process.

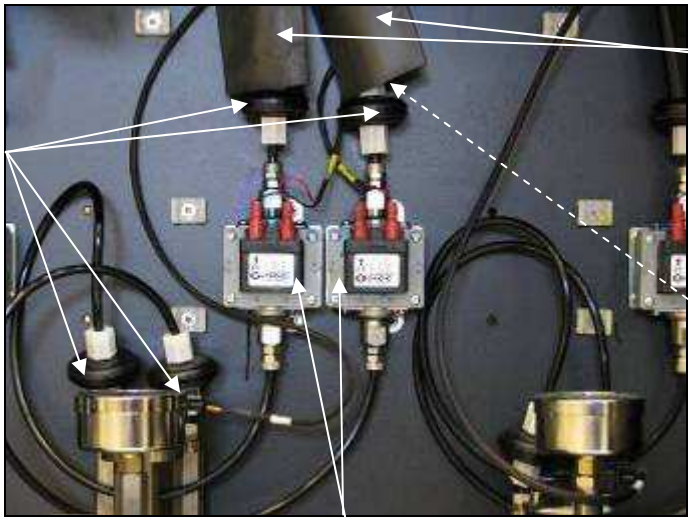

Four Ink Filters
Pair of Sleeves to protect the Non-return Valves from light penetration
Non-return Valve (covered by sleeve)
Two Pumps

Figure 78: Ink Filters, Type A Pumps and Sleeves

Figure 79: Ink Filters, Type B Pumps and Non-return Valves

Ink Waste Tank

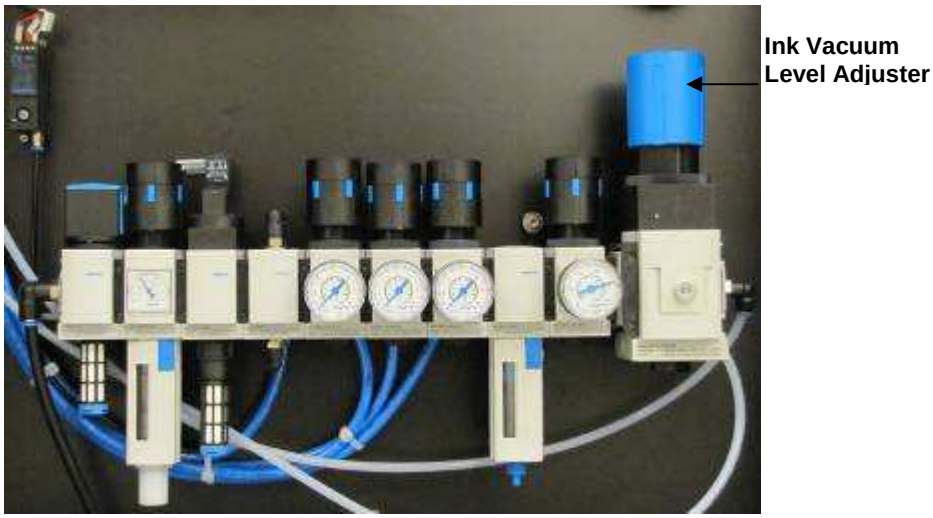
The INK WASTE TANK, shown in Figure 80, collects the waste ink from the tray located on the base of the CARRIAGE. It must be emptied every day before the printing session and before each shift.

Figure 80: The Ink Waste Tank

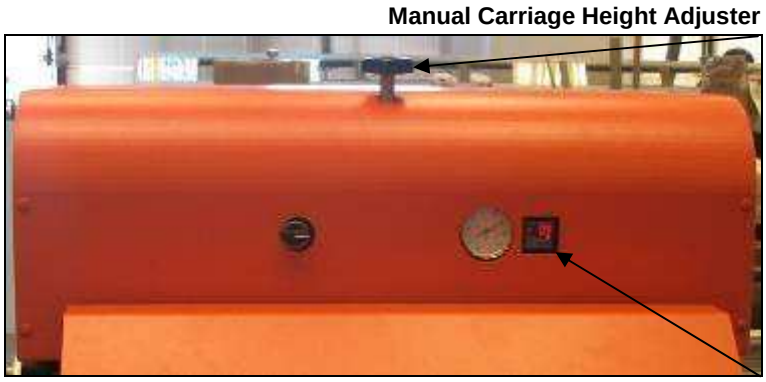
Ink Vacuum Level

The INK VACUUM LEVEL controls the ink so that it doesn't drip from the PRINT HEAD.

If the ink drips from a PRINT HEAD, use the INK VACUUM LEVEL ADJUSTER, as shown below, to adjust the vacuum level.



Monitor the vacuum level using the DIGITAL INK VACUUM LEVEL GAUGE, inset into the CARRIAGE COVER and shown below.



UV Lamps

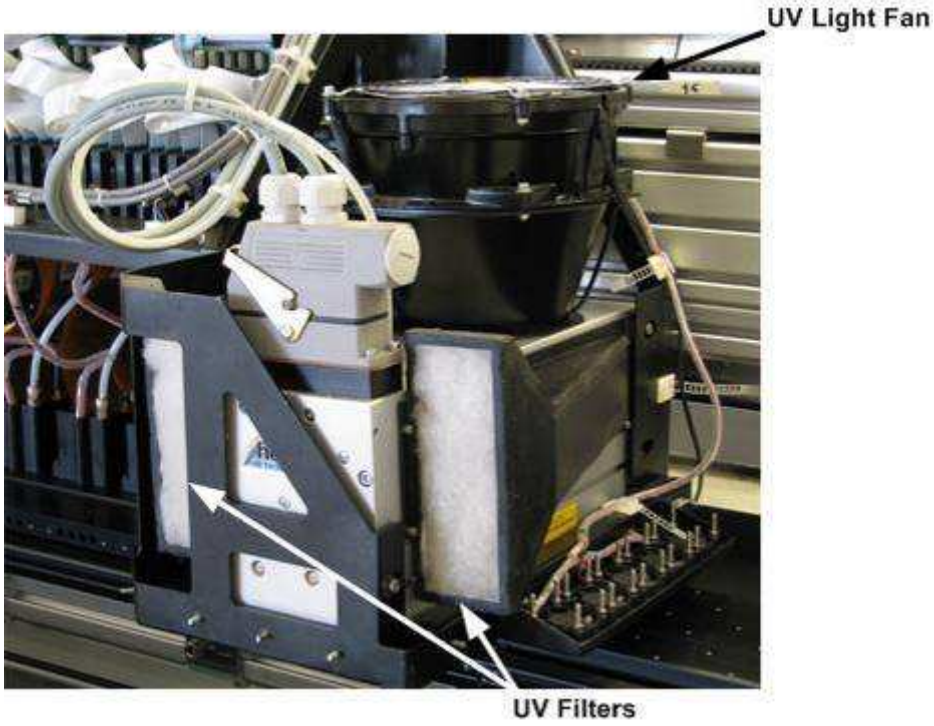


Figure 81: UV Lamp Assembly

The printer has two ULTRA VIOLET LAMP ASSEMBLIES. Each assembly is mounted on a side of the CARRIAGE, as shown above.

The filters must be changed at least once a day.

Maintenance

To obtain optimum performance from your **Barak HS** printer, you must carry out the following maintenance procedures on a regular basis:

Proper operation & maintenance is crucial to the efficiency of the machine and its life.

Unless there is an ***emergency***, do not use the Emergancy Stop Buttons or Cord to turn off the printer.

When turning off the printer, follow the shut-down procedure.

Before Printing

Before each job	Adjust Carriage height according to media type and mode. Perform nozzle test.
Before Mesh print	Raise the Wings and decrease the vacuum level to -0-. Put absorbant cloth on the Print Table.
After Mesh print	Remove the absorbant cloth and clean table if necessary.
Print Heads' Vacuum level (–0.8 to –1.2)	Check and adjust if necessary.
Main Ink tanks	Check the ink level, fill if needed.

Daily Maintenance

The MAINTENANCE REMINDER window opens either 24 hrs after last ALERTS confirmation or at 10:00 am – which ever is first, as shown in the following figure.

The printer logs the dates on which it was used. Depending on the current date, a different Maintenance Reminder will appear.

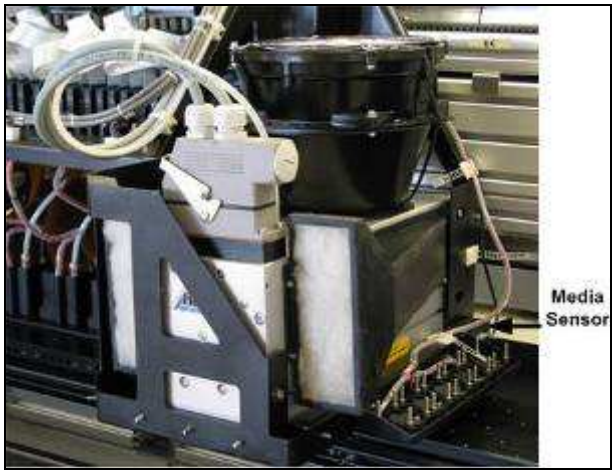
You must confirm that you have carried out the required maintenance by checking the box at the lower left corner of the window, then click CLOSE.

When changing consumables or any parts of the printer, care should be taken to dispose of these consumables or parts in the correct manner and according to the laws and regulations of the local authorities.

For further details regarding the disposal of parts and consumables, contact Matan's local distributor.

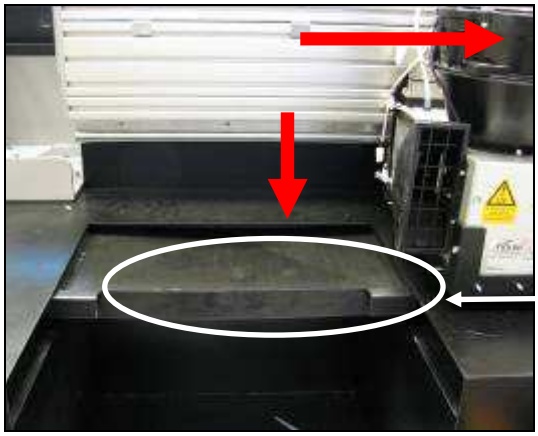
Media Sensor

Clean the sensor using clean paper with alcohol on a daily basis or whenever you sense that there is an error in the media measuring process.



Purge Sink

Manually move the Carriage and clean the Sink.



Using a scraper, clean off the cured ink from the sink.

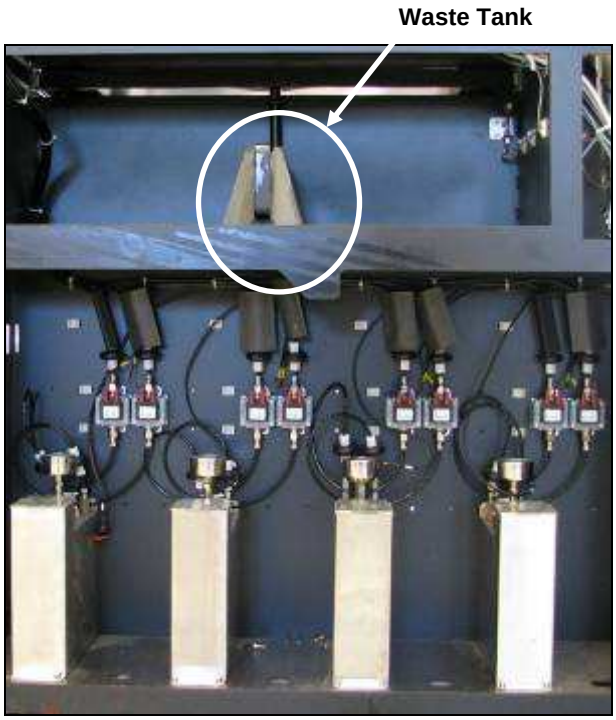
Around the Printer

Keep the area free of foreign objects and dirt.

Make sure that only the operater attends to the printer's maintenance and is allowed inside the saftey area as described in the Safety section.

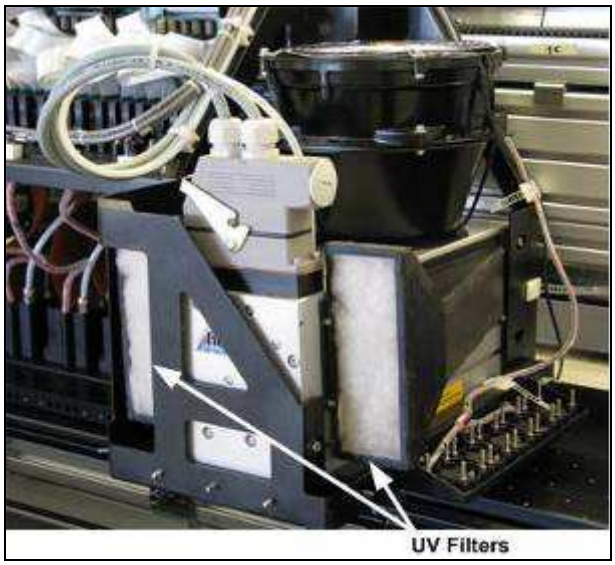
Waste Tank

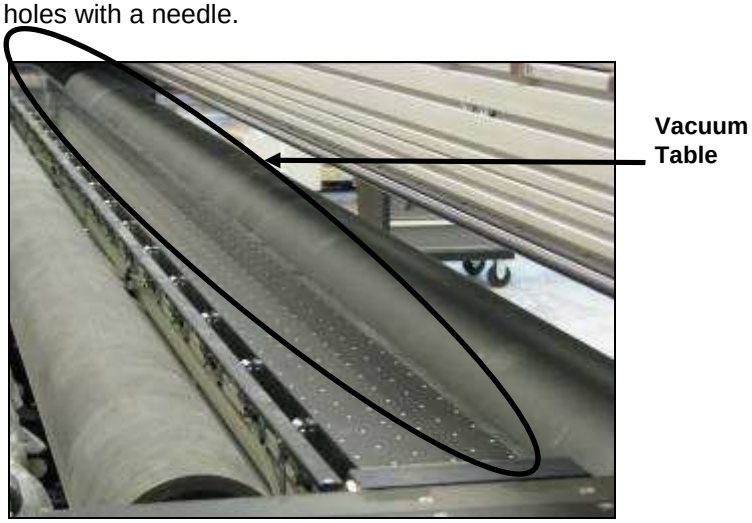
Before each shift, empty and clean the Waste Tank.



UV Filters

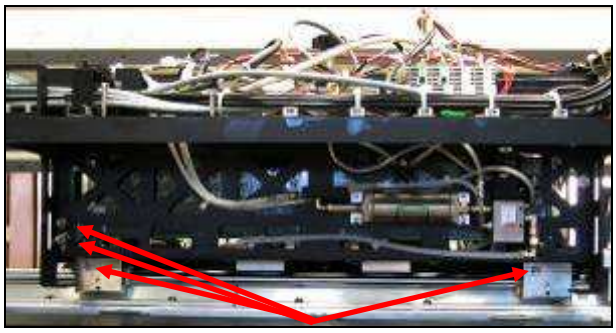
When you have a daily heavy print load, replace the UV Filters at least once a day. If your print load is not heavy, then you should replace the filters only when they become discolored.



Vacuum Table	Clean surface with a cloth and alcohol. When required, *using extreme caution*, clear blocked holes with a needle. 

Weekly Maintenance

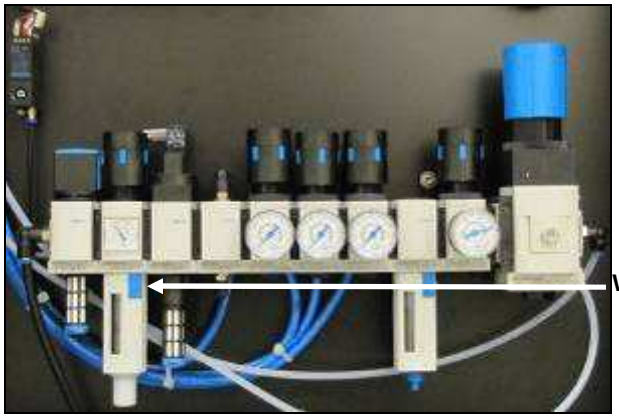
Lubricate Carriage Bearings



Grease Nipples

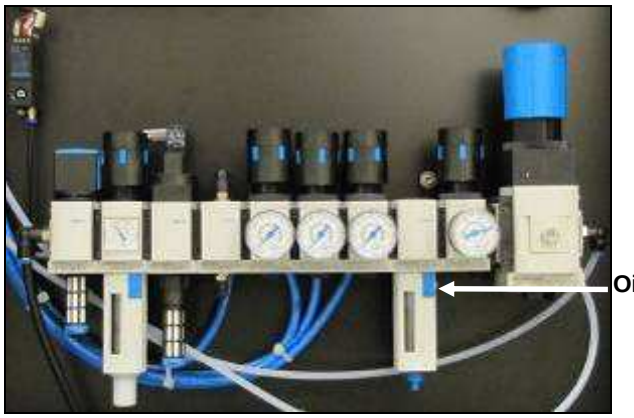
Water Filter

Empty the filter by opening the tap, and draining out the water into a suitable container.



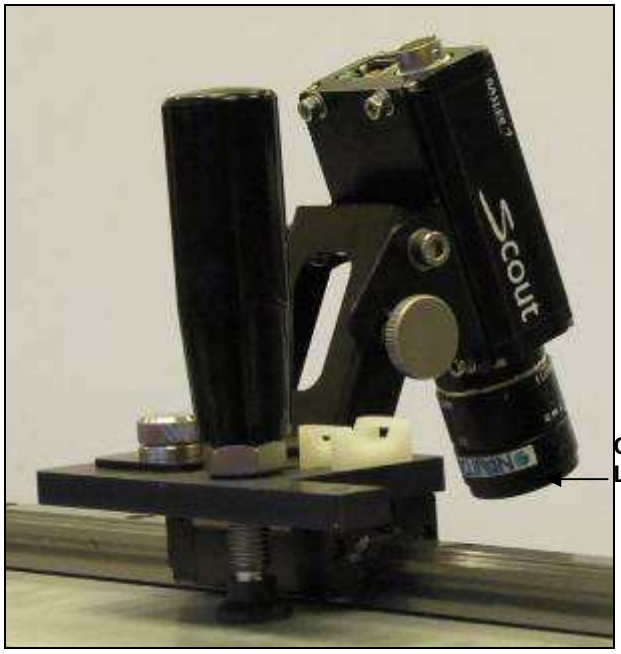
Oil Filter

Empty the filter by opening the tap, and draining out the waste oil into a suitable container.



Clean Rollers	Use alcohol and an absorbant cloth to clean all the rollers.

Back lit Cameras	Using alchohol and a clean cloth, clean the Camera lens from over-sprayed ink.



Monthly Maintenance

Clean Y & T Rubber Rollers	Use alcohol and an absorbant cloth to clean both rollers.
Clean Metal Rollers	Use alcohol and an absorbant cloth to clean the rollers.

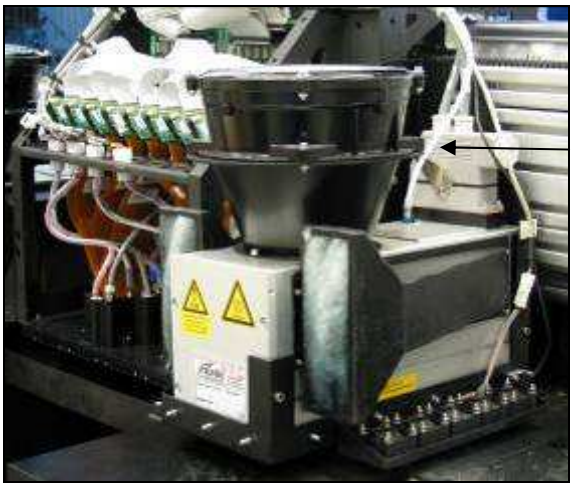
Quarterly Maintenance

Ink Filters and Pumps	Replace Ink Filters and Pumps.
	Change the Ink Filters and Pumps every three months.

Four Ink Filters

Two Ink Pumps

UV bulb – approximately every 1000 hours	Replace UV bulbs approximately every 1,000 hours, or when the printed surface is not curing, and you have increased the bulb's power to the maximum. Before attempting to change a UV bulb, you should contact either your in-house technician or Matan's engineer, for guidance.



Housing for the UV Lamp

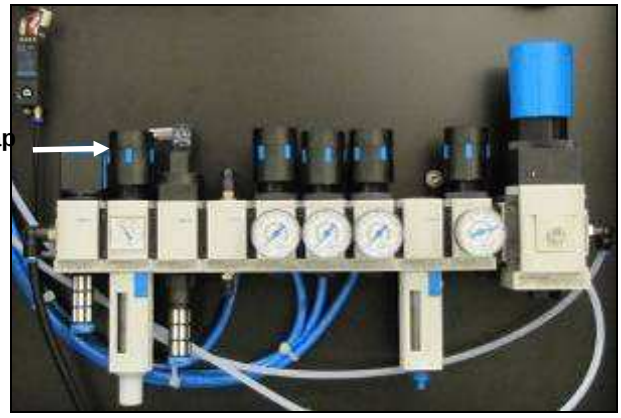
Long-term Maintenance

If you shut down the printer for a period of more than three weeks, please contact your Matan Service Center for instructions that have to be followed, so that the Guarantee Conditions are adhered to.

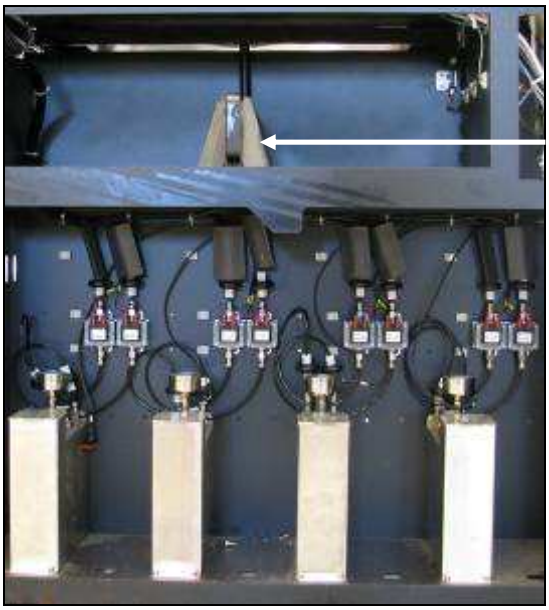
If you shut down the printer for a period of between three days and three weeks, then you should carry out the following Long-term Maintenance Procedure:

1. Carry out a PURGE.
2. Clean the PRINT HEADS.
3. Place a sheet of transparent plastic bubble material between the PRINT HEADS and the PURGE SINK.

4. Carry out the TURN OFF procedure.
5. Switch off the air supply at the AIR SUPPLY TAP on the PNEUMATIC BOARD.



6. Make sure the WASTE INK TANK is empty (shown below).



17 Appendix A: Glossary

Word / Term / Acronym	Meaning
ANSI	American National Standards Institute
Banding	Barak prints light and heavy printing passes.
Banding – gloss	Barak prints with matt and gloss stripes on the surface of the Media.
Banding – vertical	The printing is coudly only in the vertical plane.
BCC	Block Control Card
DPI	Dots per inch
LPI	Lines per Inch
PCI	Peripheral Component Interconnect
PDS	Parallel Drop Size
PLC	Programable Logic Controller
PPI	Pulse per Inch
RIP	Raster Image Process
Roll-to-Roll	Printing and rolling on Barak Rolls
SIT	Secondary Ink Tank
Wrinkle	Wringles on the media

18 Appendix B: Recommended Media

For the latest list of Recommended Media, visit http://www.matanprinters.com, and from the Home Page, open the Products tab and choose the relevant technology – UV Line or Thermal.

Click the relevant printer and choose Recommended Media.

Alternatively, open the Products tab and choose Supported Media.

Click the relevant printer and choose Recommended Media.

Document History

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